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Analysis of pricing techniques in determining a fair and reasonable price

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THESIS

ANALYSIS OF PRICING TECHNIQUES IN DETERMINING A FAIR AND REASONABLE PRICE

by

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December 1998

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The purpose of this thesis is to identify the principal techniques used by firms in pricing products for sale to the Government and to examine and analyze the conditions contributing to a firm's pricing strategy. A review of writings in marketing, acquisition, and Micro Economics provided the background information necessary to examine how the theories of pricing and profit work together with recent Federal acquisition reforms to influence a firm's pricing strategy. Interviews were conducted with Government procurement professionals as well as representatives of industry and academia concerning the methodology used in formulating pricing decisions. It was found that pricing strategies are classified into two categories – cost-based and market-based. These categories include eleven specific pricing strategies. The researcher concluded that recent changes brought about by Federal acquisition reform have accomplished their goal of more closing aligning Federal procurement practices with those of the commercial sector. The changes, however, have presented new challenges to Contracting Officers in determining that the Government pays a fair and reasonable price. Recommendations to improve the Contracting Officers' transition to more commercially based procurement practices include continued training of the Federal procurement workforce and the improved documentation of savings realized by acquisition reform measures.

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ANALYSIS OF PRICING TECHNIQUES IN DETERMINING A FAIR AND REASONABLE PRICE

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ABSTRACT

The purpose of this thesis is to identify the principal techniques used by firms in pricing products for sale to the Government and to examine and analyze the conditions contributing to a firm's pricing strategy. A review of writings in marketing, acquisition, and Micro Economics provided the background information necessary to examine how the theories of pricing and profit work together with recent Federal acquisition reforms to influence a firm's pricing strategy. Interviews were conducted with Government procurement professionals as well as representatives of industry and academia concerning the methodology used in formulating pricing decisions. It was found that pricing strategies are classified into two categories – cost-based and market-based. These categories include eleven specific pricing strategies. The researcher concluded that recent changes brought about by Federal acquisition reform have accomplished their goal of more closing aligning Federal procurement practices with those of the commercial sector. The changes, however, have presented new challenges to Contracting Officers in determining that the Government pays a fair and reasonable price. Recommendations to improve the Contracting Officers' transition to more commercially based procurement practices include continued training of the Federal procurement workforce and the improved documentation of savings realized by acquisition reform measures.

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A. GENERAL

The purpose of this research is to review the goals of recent acquisition reform legislation with regard to the impact of the changing definition of a commercial item and examine the factors that influence the methods a strategies applied by suppliers providing their goods for sale to the Government.

B. BACKGROUND

On 24 June 1998, the Department of Defense Inspector General (DODI.G.) issued an audit report that documented excessive charges incurred by the Government for goods procured on a sole-source, market-based, catalog price approach by the Defense Logistics Agency. The report highlighted a growing concern over the impact of acquisition reform with regard to the classification of "commercial items" and Government's growing reliance on market forces to determine a fair and reasonable price for commercial items. Specifically, the report charged that the classification of an item as commercial and acquisition reform directives concerning commercial items constitute a "major loophole for sole-source vendors to charge prices that cannot readily be evaluated for reasonableness. The report ultimately recommended the Under Secretary of Defense for Acquisition and Technology

> ...provide additional guidance and training to the Department of Defense acquisition community on how contracting officers should obtain fair and reasonable prices for commercial items from sole-source suppliers when there is no commercial market to ensure the integrity of prices and the commercial items are exempt from certified cost and pricing data. [Ref. 1:p. 29]

In the aftermath of the DoD I.G. findings, the Under Secretary of Defense for Acquisition and Technology has aggressively defended the goals of acquisition reform while trying to provide the necessary training to assure that Federal Government procurement professionals understand and adapt to the complexities of commercial practices in procuring goods for the Government.

C. RESEARCH OBJECTIVE

The purpose of this research is to review the goals of acquisition reform with regard to the impact of classifying an good as a commercial item and examine the factors that influence the methods and strategies applied by industry in determining prices for their goods. These factors will include: the nature of the firm's competitive position within the industry, the impact of changing technology in the industry, the growth rate of the industry and the number of firms within the industry doing business with the Government.

This examination will reveal a myriad of factors influencing a firm's pricing decisions and provide a basis for Government procurement personnel to better understand the pricing strategies used by firms. This improved understanding will provide a basis for Government procurement personnel to better prepare for negotiations with firms without the benefit of prior disclosure of the firm's cost and pricing information.

D. RESEARCH QUESTIONS

The primary research question is derived from the above stated research objective and asks: What are the principal techniques used by firms in pricing products for the Government and how might an understanding of these techniques be most effectively used in evaluating and determining a fair and reasonable price?

The following subsidiary questions were developed to assist in answering the primary question:

What are the principal pricing techniques used by industry?

1. What is the difference between a Cost-Based and a Market-based pricing strategy?

2. What are the circumstances that distinguish the use of one pricing technique over another?

3. What are the non-cost related factors that impact a firm's pricing strategy?

4. What skills or techniques are required of Department of Defense (DoD) procurement professionals to recognize which of the pricing techniques is being used by a firm?

5. How does the recognition of the pricing technique used by a firm affect the Government's preparations for negotiations?

E. SCOPE, LIMITATIONS, AND ASSUMPTIONS

The scope of this research will include: (1) examination of the evolution of the Government's policies concerning industry's pricing practices, (2) examination of different pricing strategies commonly used in industry, (3) consideration of the skills required of Government procurement professionals to recognize and respond to a firm's pricing strategy and (4) examination of different sources of pricing information available to the procurement professional in preparation for negotiations. The thesis will conclude by providing recommendations for how Contracting Officers can better for negotiations with contractors who are no longer required to submit certified cost and pricing data to the Government in advance of contract negotiations yet retain the responsibility of achieving a fair and reasonable price for the goods procured.

This thesis will be limited to examining pricing techniques used by industry in the sales of goods to the Government. This research will not examine pricing techniques for service contracts.

It is assumed that the reader has a basic understanding of business principles within a free-market society. Additionally, the reader is assumed to have a basic understanding of the Government's goals of in seeking greater efficiency and cost savings by contracting with external suppliers for goods required by the Government.

F. LITERATURE REVIEW AND METHODOLOGY

A review of the available literature revealed numerous writings on the topic of pricing strategies within a commercial environment. Additionally, a variety of recent writings were found which addressed the impact of acquisition reform. A few of the writings concerning acquisition reform discussed developing issues in commercial pricing for Government contracts. Overall, there was a consistent theme to the recent writings indicating that greater understanding is required of the Government's acquisition community in applying commercial pricing practices in the procurement environment. The expressed need for such understanding was the impetus behind this research effort.

The research effort involved review of numerous writings in the area of pricing strategies, common business practices within industry, the history behind acquisition reform, and the impact acquisition reform has brought about it the Government and commercial sectors. These writings were used to form the foundation on which interviews were conducted with representatives of the Government and industry. The combined information received from available writings and the results of interviews provided the necessary basis for identifying trends within the industry and for reaching

conclusions regarding the strategies used by industry in preparing prices for the products sold to the Government. Finally, these conclusions formed the basis for recommendations concerning the way the Government procurement community could better understand industry's pricing strategies and techniques in determining a fair and reasonable price for goods procured by the Government.

G. ORGANIZATION OF THE STUDY

The thesis is broken up into six chapters. The next chapter builds a theoretical framework for pricing decisions. Included in this chapter examination of the economic factors impacting allocation of resources, the components of cost in manufactured goods, and profit theory. The chapter concludes by examining statute and regulations governing Federal procurement.

Chapter III continues an examination of how pricing decisions are formulated by discussing market factors that impact the pricing decision-making process. In particular, the chapter examines the influence cost, customers, and competition has on the process as well as explaining ten different pricing strategies used by firms.

Chapters IV and V examine each of the eleven pricing strategies and analyzes the conditions in which support the use of each strategy. These chapters also compare and contrast the strategies in an effort to identify advantages and disadvantages with each.

The final chapter will address conclusions and recommendations, provide detailed answers to the research questions, and suggest additional areas for further research in the area of enhancing an understanding of the Federal procurement workforce's understanding of the intrigues of adapting to commercial pricing practices.

II. THEORETICAL FRAMEWORK FOR PRICING DECISIONS

A. INTRODUCTION

The United States Department of Defense's (DoD's) budget for Fiscal Year 1999 exceeds $270 billion. [Ref. 2:p. 297] These funds will be used to provide for a myriad of expenditures including: personnel, operating and maintenance expense, and the procurement of supplies and services needed to support the national defense effort. In general, public policy makers monitor the way in which the DoD spends its money in an effort to ensure that taxpayer's interests are protected and to prevent potential abuses. The expenditure of these funds continue to receive significant review throughout Government as well as by special interest groups.

The increased emphasis on DoD procurement is occurring at the same time that the Federal Government is initiating sweeping reforms in the area of acquisition. [Ref. 3:p. 43] These reforms are designed to promote commercial practices as a means of achieving greater efficiency in the procedures used to conduct acquisitions while simultaneously delivering superior products to the customer. The Government's movement toward adopting commercial practices has served to change the paradigm applied by the Government's Contracting Officers in negotiating prices for the goods it procures. While Government policies imposed strict requirements on contractors to disclose information about their handling of business costs, the changes introduced by acquisition reform have served to reverse many of these policies and limit the information a Contracting Officer can require of a contractor. This action has significantly impacted the manner in which Contracting Officers prepare for and conduct negotiations with Government contractors. Prior to acquisition reform, the Contracting

Officer was provided significant insight into a contractor's pricing methods. Under acquisition reform, however, the Contracting Officer must apply different skills and understanding to analyze the strategies used by firms in pricing their products for sale to the Government. This Chapter will review general economic pricing theory and various statutes and regulations that govern the Federal procurement process in order to understand the underlying fundamentals appropriate to contract pricing.

B. PRICING THEORY

1. The Allocation of Resources

The efficient allocation of resources is the ultimate goal of an economy. Efficiency within the economy enables its members to enjoy the maximum benefit of the labor and resources available to produce goods and services to consumers. Early economists observed that an economy in which consumers exert influence over the allocation of resources most effectively achieved efficiency. This condition has become known as a free-market economy. In contrast, an economy in which decisions concerning the allocation of resources are controlled by an authoritarian force is called a command economy. [Ref. 4:p. 48] The United States economy features elements of both a free-market and command economy. While most decisions about resource allocation are influenced by the demands of consumers, Government is an active participant in the process. The Government acts as both a regulating influence to protect public interests as well as a sizable consumer of the goods and services produced by the economy.

Adam Smith, in his classic *The Wealth of Nations*, published in 1776, spoke of the price system as "the invisible hand." [Ref. 4:p. 50] He explained that the invisible hand symbolically responded to the changing demand for goods and services. As demand for

goods and services increased, the invisible hand would guide the economy to raise the price to consumers. Smith further hypothesized that the increased cost to consumers would either motivate buyers to restrain against over consumption or motivate additional allocation of resources to respond to society's growing demand. Conversely, as demand for goods and services decreased, the invisible hand would guide the economy to lower the prices to consumers. A decreasing price, Smith believed, would motivate greater consumption or a decrease in the number of suppliers who provide the good or service at a reduced price. In short, the invisible hand represents a tool to effectively allocate resources in response to society's continually changing demand and supply of goods and services. [Ref. 4:p. 51] Thus, the study of how a market allocates resources in a free-market is built upon the foundation of supply and demand.

With efficiency being the ultimate goal of a market economy, the task of determining the proper combination of supply and demand becomes fundamental to formulating the price suppliers charge for the goods they produce. There are several factors that contribute to determining the quantity demanded. These factors include:

- The commodity's own price.
- The prices of related commodities.
- Average household income.
- The distribution of income among households.
- The size of the population. [Ref. 4:p. 60]

The free-market theory states that there is relationship between price and the quantity demanded. [Ref. 4:p. 51] This relationship is reflected by a demand curve in

which one axis represents the price of the commodity and the other axis represents the quantity supplied. As price increases the quantity demanded will decrease. Conversely, as price decreases the quantity demanded will increase.

The theory also recognizes situations in which the demand curve may shift without changing the shape of the curve or relative relationship between the price of the commodity and the quantity supplied. [Ref. 4:p. 122] Shifts in the curve occur as the income level of the consumer changes. If the consumers' level of income increases and demand remains unchanged, the demand curve will shift to the right, indicating that consumers will generally buy larger quantities of the good due to their additional income. Conversely, a drop in consumers' income will cause the demand curve to shift to the left, indicating that consumers will collectively demand a smaller quantity of the good unless the price of the commodity also decreases in relation to their income. [Ref. 4:p. 122]

Similar to the demand curve, the supply curve represents producers' willingness to provide goods and services at a given price. [Ref. 4:p. 119] Producers will respond positively to consumers' willingness to pay a higher price for the goods they provide and negatively when consumers' willingness to pay is decreased. The following factors impact the supply curve:

- The commodity's own price.
- The prices of other commodities.
- The costs of factors of production.
- The goals of the firm.
- The state of technology. [Ref. 4:p. 66]

The goal of a free-market system is to determine the best combination of price and quantity, to provide incentive to consumers to buy goods and producers to provide the required quantity to satisfy consumers' demands. Figure 2.1 depicts these relationships.

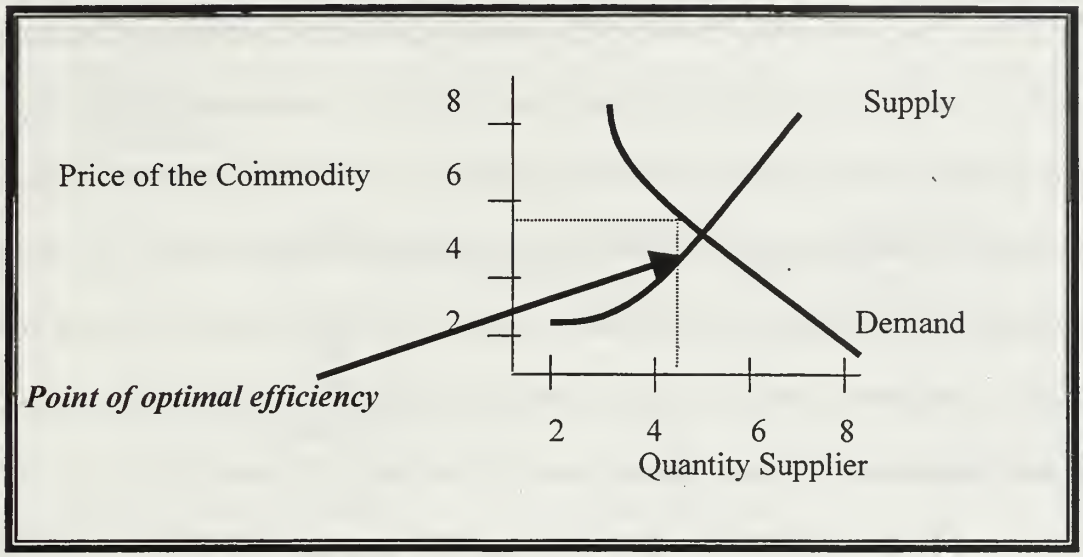


Figure 2.1. Supply and Demand Curves [Ref. 4:p. 237]

2. Cost Based Pricing versus Market Based Pricing

a. Cost Based Pricing

Firms determine the selling price of their goods using one of two methods. First, under a cost based pricing model, firms determine the final selling prices by assessing the total cost to produce the good and adding a profit. [Ref. 5:p. 322] Once this price is determined, the product enters the competitive market where potential consumers assess the product's value to them as consumers and determine the quantity demanded given the price established by the producer. Applying the invisible hand

principle, if the product is overpriced relative to its perceived value to the consumer, excess quantities produced by the supplier will accumulate and motivate sellers to decrease price until supply and demand achieve equilibrium. [Ref. 4:p. 97]

A logical way in which firms determine the minimum price to charge for the goods they produce is to analyze the costs incurred by the firm in preparing the good for sale. Once these costs are accurately identified, the firm determines a fair amount of profit to include in determining the price charged to consumers. [Ref. 6:p. 111] Conversely, if the price charged by the supplier is lower than the perceived value by the public, the quantity demanded will exceed the quantity provided at that price. When this condition occurs, two possible alternatives result. First, the supplier will elect to raise the price and maintain quantity steady or, second, maintain the original selling price and increase production to a level required to satisfy the public's demand. [Ref. 4:p. 113]

The profitability of a firm using cost based pricing depends fundamentally on the accuracy of its estimating and accounting practices. Without reliable knowledge of its costs, a firm cannot make sound business decisions in pricing its goods. In preparing accounting information for the firm's manager, accountants classify costs into two general categories: direct costs and indirect costs. [Ref. 7:p. 33]

Direct costs generally include all material, labor, utilities, certain research and development costs, and equipment hours directly attributed to the production of a specific product or service. The tracking of these costs is vital to enable the firm to determine the minimum price necessary to prevent the firm from losing money. Indirect costs (labor and materials) represent all other expenses incurred in the manufacture of the good or service. Indirect costs generally include overhead costs, marketing expenses, and

other costs which are not directly related to the production of a specific product or service. Figure 2.2 illustrates the direct costs and indirect costs that make up the overall product cost.

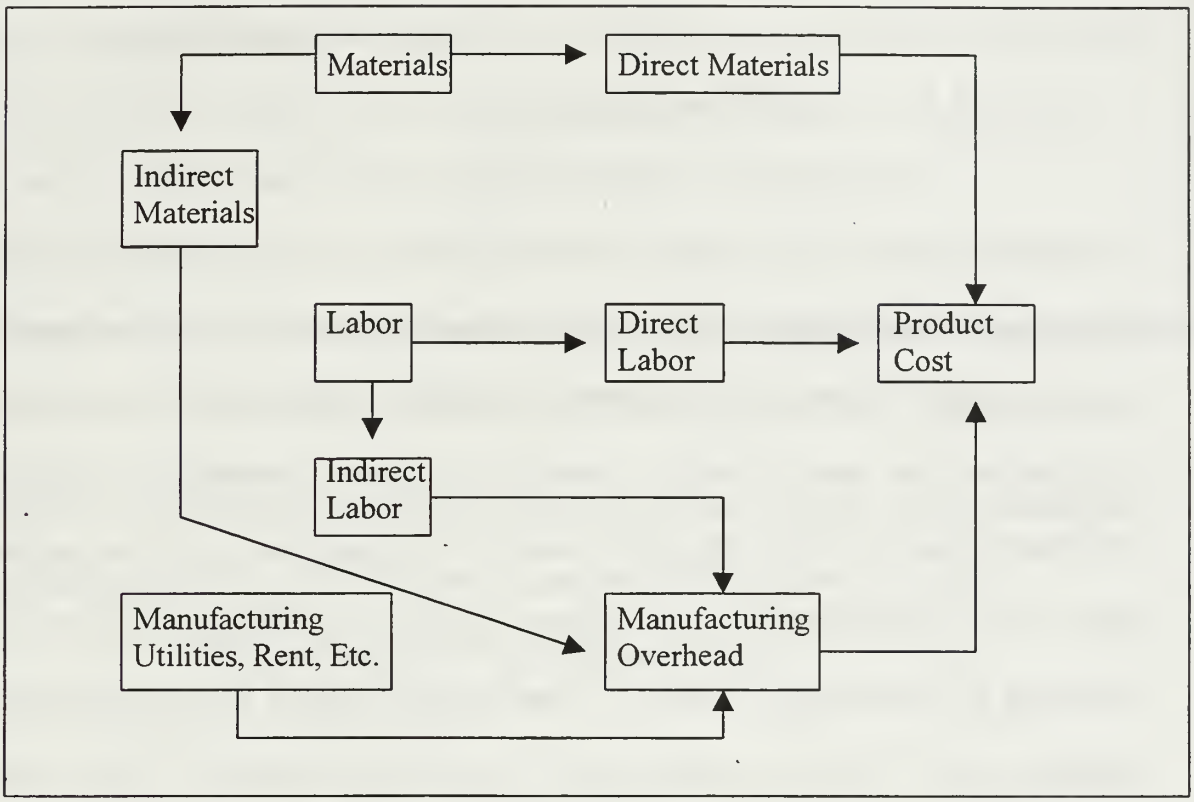


Figure 2.2. Components of Manufactured Product Costs [Ref. 7:p. 32]

Beyond classifying costs as direct or indirect, firms must recognize the distinction between fixed costs and variable costs. Variable costs are those that, "...change in direct proportion with a change in volume within a relevant range of activity." [Ref. 7:p. 38] Examples of variable costs include: direct materials, direct labor, certain manufacturing overhead charges, and energy costs. Fixed costs, on the other hand, are "costs that are unchanged as volume changes within the relevant range of activity" [Ref. 7:p. 38] Examples of fixed costs include: rent and/or lease expense of

building and equipment, insurance expense, and most manufacturing overhead expenses. Firms further classify expenses as semi-variable costs and step costs. A semi-variable cost is one that has both fixed and variable components and a step cost increases incrementally in steps as volume increases. [Ref. 7:p. 40] An accurate accounting of each of these costs is critical to the effective use of a cost based pricing system.

b. Market-based Pricing

The alternative to cost-based pricing is market-based pricing. Under the market- based pricing model, suppliers reverse the pattern used in the cost-based strategy. [Ref. 8:p. 5] Specifically, suppliers look to the customer to determine the value of a specific product. The value determined by the consumer is then analyzed to determine a price that will best meet the public's demand given the firm's manufacturing capability. The firm will seek to achieve the optimal combination of price and quantity to maximize profit. Once the selling price and optimum quantity are determined, the firm will determine if it can supply the good at a cost below the selling price and achieve an adequate profit. If the firm determines that its manufacturing costs plus a desired profit are at or below the predetermined selling price, the firm will proceed with production and will produce within its capabilities to meet the public's demand. [Ref. 8:p. 3] Figure 2.3 illustrates the differences between a cost-based pricing method and a market-based pricing method.

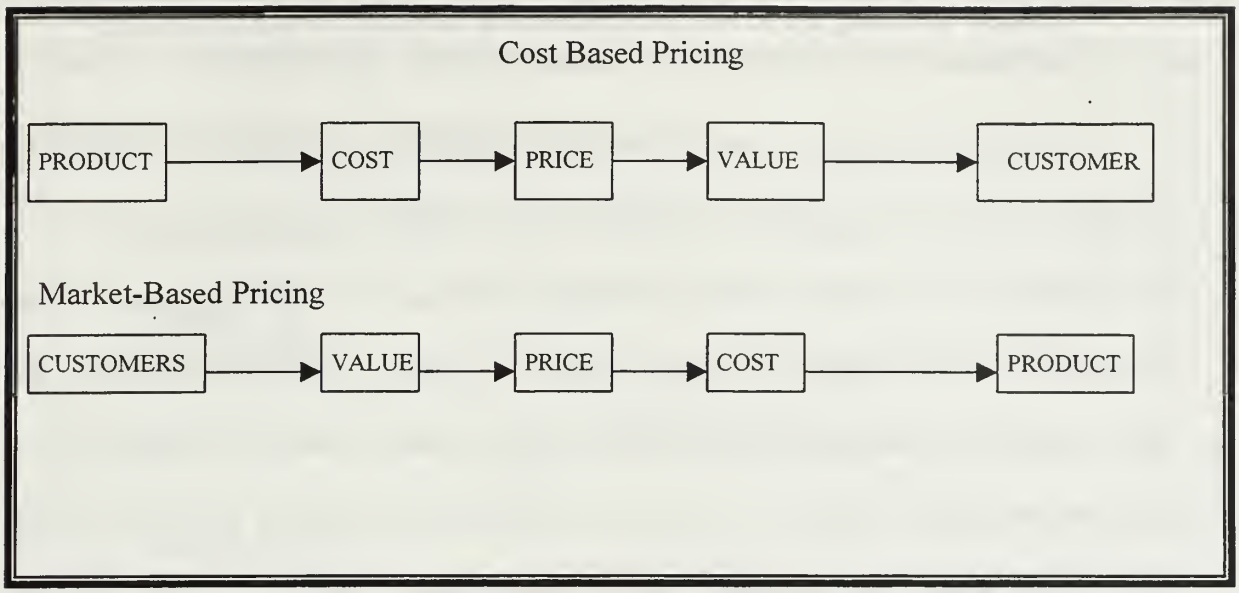


Figure 2.3. Role of Pricing Product Development [Ref. 8:p. 5]

Despite the differences between a cost-based pricing approach and a market-based pricing approach, the need to accurately maintain records of costs is essential.

3. Contributing to the Firm's Bottom Line

As Nagle and Holden write,

> There are three benefits to determining the true unit cost of a product or service for pricing. First, it is a necessary first step toward controlling costs. The best way to control variable costs is not necessarily appropriate for controlling fixed costs. Second, it enables management to determine the minimum price at which the firm can profitably accept incremental business that will not affect the pricing of its other sales. Third, and most important for our purposes, it enables management to determine the contribution margin for each product sold, which…is essential for making informed, profitable pricing decisions.... The size of the contribution as a percent of the price has important strategic implications. It is the share of price that adds to profit or reduces losses. [Ref. 8:p. 31]

Nagle and Holden continue,

> The contribution margin is a measure of the leverage between a product's profitability and its sales volume. An accurate contribution margin

> enables management to determine the amount by which sales must increase following a price cut or by how little they must decline following a price increase to make the price change profitable. [Ref. 8:p. 33]

The goal of a firm in a market economy is to produce profits for its owners and/or investors. A firm's management is assessed by how well they achieve this goal. There are a number of internal measures managers can use to determine their overall effectiveness. These measures include Return on Sales (ROS), which measures the firm's profitability relative to sales volume. A high volume of sales with a relatively low contribution margin achieves a certain ROS while a low volume of sales with a high contribution margin may produce a larger overall profit. Similarly, firms frequently assess profitability relative to Return on Assets (ROA) or Return of Investment (ROI). These are critical measures because they contribute substantially to a firm's ability to attract investors who provide necessary capital for expansion of the firm's capabilities as well as research and development into new and improved products. Without achieving an adequate ROI, the firm must rely on the banks or other lending institutions to support the firm's expansion. Lending institutions also assess a firm's viability in much the same way as private investors consider the purchase of equity in the company. Lenders analyze the firm's overall financial position, and carefully assess anticipated sales volume and profit to determine whether or not the firm will be able to repay its loan. Consequently, all firms seek to establish the contribution margin that best fits their needs as a firm, as well as maintain competition within the industry.

Several factors apply in establishing the ROR/ROI thresholds. These factors include: the economic environment, the general maturity and health of the particular industry, and the competitive environment. Frank E. Bingham has written on the subject

of pricing strategies and how a Product's Life Cycle (PLC) impacts a firm's pricing decisions. He divides the PLC into four distinct phase including Introduction, Growth, Maturity, and Decline as illustrated in Figure 2.4.

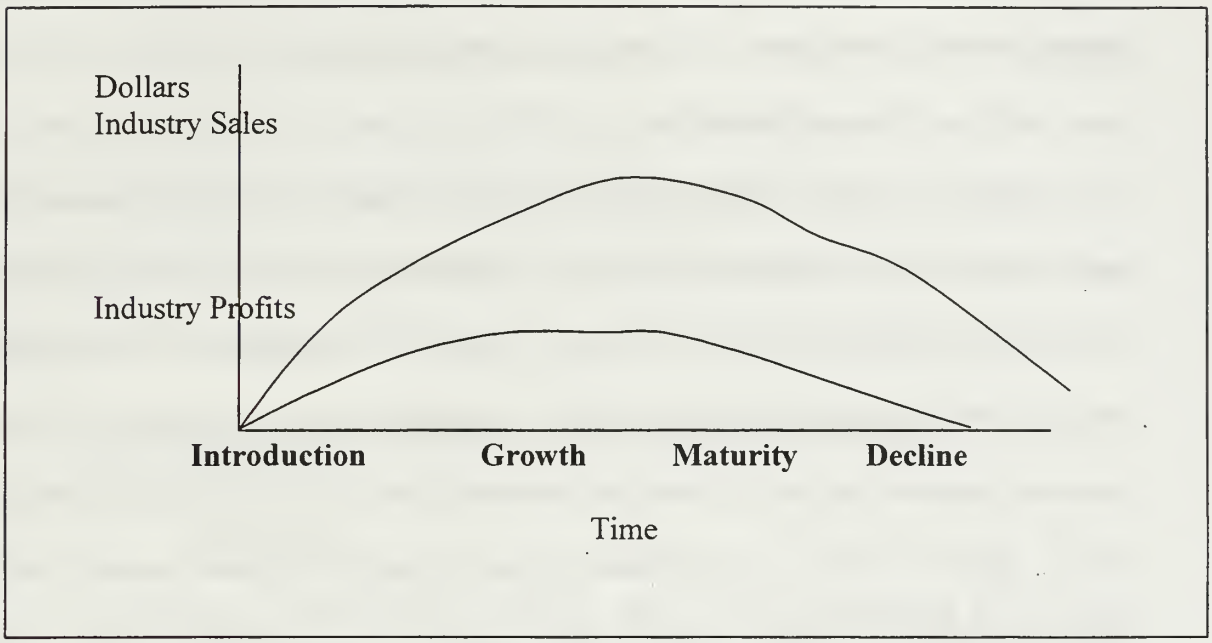


Figure 2.4. The Product Life-Cycle Concept [Ref. 9:p. 4]

Bingham describes the Introduction Stage as a decision-point. The firm can elect to price their new product high in an effort to quickly recover initial investment or the firm can price the product low as a means of penetrating the market and gaining market share. During the Growth Stage, sales and market acceptance accelerates, and unit costs decline with increasing sales volume and experience in manufacturing. Profitability in the Growth Stage is usually high before moving into the Maturity Stage at which time competition is at its peak, and unit profit declines, as discounting becomes popular, and maybe even necessary. In the Declining Stage, a supplier may reduce sales effort as it "harvests" the dollars previously spent on the marketing effort. The supplier might

revive the product by repositioning it, repackaging it, or otherwise re-marketing it. At times, the product may also be terminated. [Ref. 9:p. 4] Bingham's representation of the PLC is useful in explaining the factors impacting a firm's pricing decision-making process. As the product evolves through the cycle, factors influencing pricing decisions change, leading to changes in the firm's strategy for the product.

4. Theory of Profit

The term "profit" is generally defined as the amount of money received by a seller, minus the costs incurred by the seller to provide the good. [Ref. 6:p. 9] However, the theory of profit goes beyond the simple comparison of selling price to cost. Profits are also defined in economic terms which state profits are the "...difference between revenues received from the sale and the opportunity cost of the resources used to make them." [Ref. 4:p. 181] This definition includes in costs the imputed returns to capital and to risk taking. According to Lipsey and Steiner, under the economic theory of profit, "a situation in which revenues equal costs (economic profits of zero) is a satisfactory one – because all factors, hidden as well as visible, are being rewarded at least as well as in their best alternative use." [Ref. 4:p. 183] Thus, the economic theory of profit considers a large view of the firm and includes the opportunity costs associated with a firm committing resources toward a particular line of production. By suggesting the acceptability of a situation in which a firm receives zero profits, economists are suggesting that a firm is successful because it covered all its accounting costs plus the opportunity cost associated with foregoing other ventures. In short, with zero profits the economic theory of profit suggests that a firm can do no better, and may do worse, in allocating resources differently.

In contrast to the economic theory of profits, accountants view profitability in more common terms of revenues exceeding expenses. The definition of accounting profits suggests that a firm which merely covers its operating expenses with revenues generated from sales is not profitable, nor is it losing money. It is simply breaking even. [Ref. 4:p. 182] In the view of the accountants, and a majority of investors and lenders, profitability is a simple comparison of revenues earned by sales and the cost of producing the good. Given the necessity to reward investors with profits, a firm earning zero accounting profits in the long run will not successfully attract investors and remain in business. [Ref. 4:p. 182]

C. STATUTE AND REGULATIONS GOVERNING FEDERAL PROCUREMENT

1. Introduction

As discussed earlier in this chapter, the Federal Government is an active participant in the American economy. In addition to serving a regulatory function in protecting public interests, it also represents the taxpayer and acts as a consumer of the goods and services produced by the economy. These two distinct functions distinguish the Government as a unique consumer within the larger market place. On one hand, the Government acts like any other business enterprise competing for goods and services of suppliers in the economy. On the other hand, Government retains a fiduciary responsibility and governing authority to protect the use of public funds and guard against abuse of public interests. [Ref. 10:p. 746]

In carrying out its fiduciary responsibility to taxpayers, the Government has developed and refined its pricing policies designed to keep profit objectives at a

reasonable level. These efforts have included several studies, beginning with "Profit 76" and culminating in a June 1985 "Defense Financial and Investment Review" (DFAIR) [Ref. 11:p. 57] These policy reviews sought to respond to Congress' concerns over potential abuse in defense contract pricing. As expressed by Representative Jack Brooks, former Chairman of the House of Representatives' Government Operations Committee,

> The defense industry needs profits to pay reasonable dividends and to invest in plant and equipment. The country needs that investment to maintain a strong industrial base for national defense. Excessive profits, however, cannot be justified at any time and are all the more objectionable when we have to reduce or even eliminate critical government services in view of the record high deficits. We need assurance that DoD's policy provides only for reasonable profits. [Ref. 11:p. 57]

The views expressed by Representative Brooks were indicative of the general attitude of Congress, which accepted the conclusions of both the "Profit 76" and DFAIR studies and adopted legislation which recognized and accounted for contractor risk in providing goods to the Government. [Ref. 11:p. 58]

The "Profit 76" Study recognized the need to encourage contractors' investment in productive plant and equipment for increased productivity, to compensate contractors for higher risk, and to decrease emphasis on cost and past performance in fixing contract profit rates." [Ref. 11:p. 57] The changes recommended in the Study were promulgated in Defense Procurement Circular (DPC) 76-3. [Ref. 11:p. 57]

The General Accounting Office (GAO) later assessed the impact of DPC 76-3 and found that the changes were insufficient to motivate many defense contractors to invest in additional cost-reducing facilities. [Ref. 11:p. 57] These changes, the Government felt, were essential to ensure the Government's defense dollars were being spent efficiently and to protect overall health of the Defense industrial base. Recognizing that DPC 76-3

fell short of these goals, DoD published a new Defense Acquisition Circular (DAC) 76-23 in 1980. [Ref. 11:p. 58] The revised DAC 76-23 included the following two specific provisions designed to provide necessary incentive for investment in additional cost-reducing facilities:

- Profit for facilities capital investment was increased from a 6-10 percent range to a 16-20 percent range.
- Weighted Guidelines were modified to provide separate profit weight ranges for manufacturing, research and development, and service contracts. [Ref. 11:p. 57]

The GAO completed an evaluation of the impact of DAC 76-23 and concluded that the revision "caused an unintended increase in profit objectives from 0.5 percent to 1 percent annually in the Fiscal 1981-1983 period." [Ref. 11:p. 57] Policy makers concluded that additional changes to the profit policy were required.

The DFAIR was conducted in 1985 for the purpose of addressing the issues raised in the GAO assessment of the impact of DAC 76-23. The Review had two objectives:

- To measure differences in profit between defense business and commercial sales of goods and services in the open private sector market.
- To explore opportunities for reform in contract financing policies and the way contracting officers develop profit objectives. [Ref. 11:p. 57]

The DFAIR found that defense contractors realized greater profits from Government contracts than from the commercial sector. [Ref. 11:p. 57] However, these profits were not found to be excessive. The Review further found that a profit factor was required in the Weighted Guidelines to recognize contractors' investment in working capital. The changes to the Weighted Guidelines are reflected in Figure 2.5.

DFAIR – Revised Weighted Guidelines
(in percent)

	Land	Furniture & Fixtures	Buildings	Equipment
Previous	16 to 20	16 to 20	16 to 20	16 to 20
Revised	0 to 0	4 to 8	6 to 10	16 to 20

Figure 2.5. Weighted Guidelines Revisions [Ref. 11:p. 58]

The changes in percentages adopted in the Weighted Guidelines were made to reflect the Government's reference for types of facilities investments that led to cost reduction and more productive items.

2. Evolution of the Federal Procurement Process

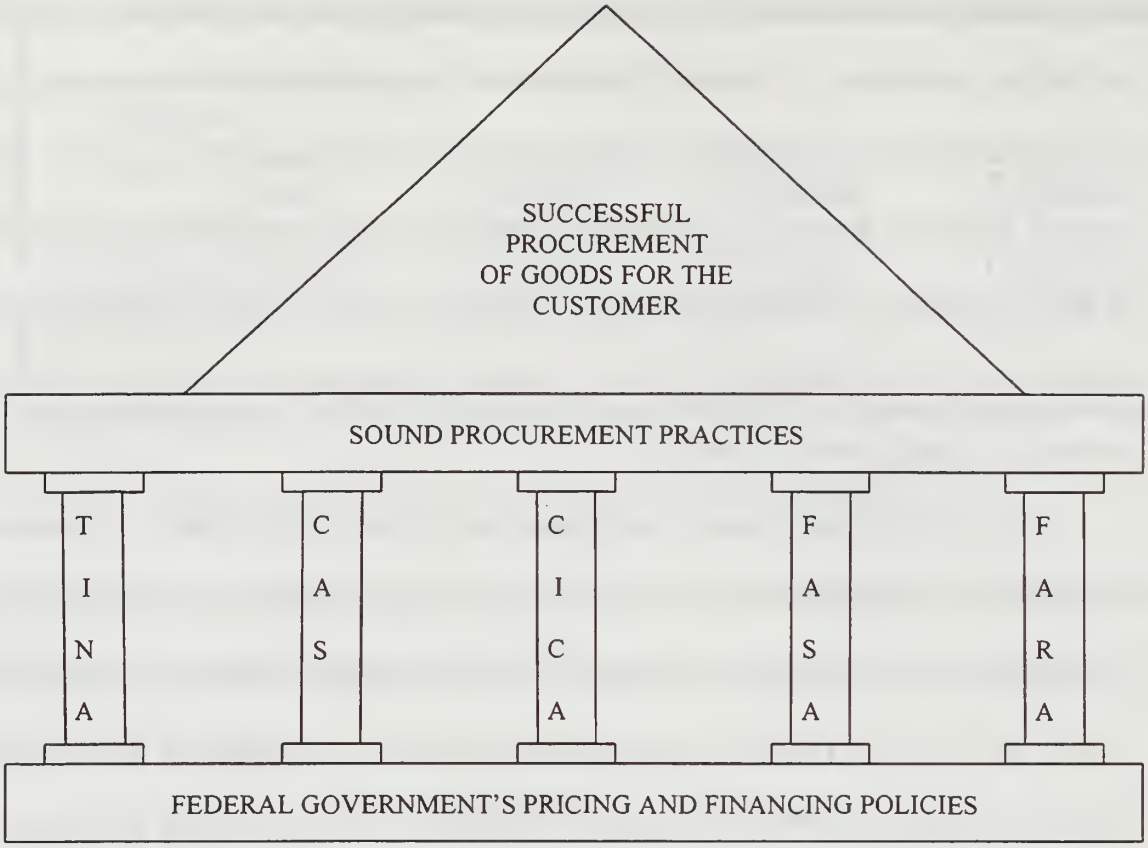
The United States Government has long been concerned about protecting the integrity of the Federal procurement process and ensuring the proper stewardship of public's funds. Throughout history, the Congress has sought to improve the procurement process in an effort to expand competition and ensure fairness as a means of obtaining high quality goods and services which are procured for the lowest cost. The challenge to lawmakers in achieving these goals is complicated by the reality that Government is a unique customer within the commercial sector and, as a unique customer, requires special consideration. Within the commercial marketplace, Government differs from other commercial customers in a variety of ways. First, Government (DoD in particular) is a final customer, or end user, since it does not buy a product for resale. This means that the Government has fewer of the market forces working toward achieving fair and reasonable

prices. [Ref. 3:p. 44] In addition, Government agencies are non-profit and, with few exceptions, continuous. This means that the Government does not have to contend with the commercial threat of bankruptcy to force efficiency in the procurement process. [Ref. 3:p. 44] However, the public taxpayers have imposed a duty upon government to spend its funds prudently with the expectation of advancing a myriad of socio-economic goals. Consequently, the legislation governing the Federal procurement process must attempt to give proper consideration to these facts.

Several significant pieces of legislation have advanced this effort. In particular, the Truth In Negotiations Act (TINA) of 1962, the implementation of Cost Accounting Standards (CAS) in government contracts in the, the Competition In Contracting Act (CICA) of 1984, the Federal Acquisition Streamlining Act (FASA) of 1994 and the Federal Acquisition Reform Act (FARA) of 1996 [Ref. 3:p. 44] are among the legislative cornerstones governing current Federal procurement of goods and services. Figure 2.6 depicts these statutes.

3. Truth in Negotiations

The passage of the Truth in Negotiations Act (TINA) of 1962 profoundly impacted the Federal procurement process by directly addressing the risk involved in other-than-competition contracts. [Ref. 3:p. 45] The Act imposed requirements for sole-source suppliers to submit cost or pricing data before the award of a negotiated contract, and to certify that the data were current, accurate, and complete. [Ref. 3:p. 44] The purpose of this important legislation was to provide the Government with all the costs and pricing data used by the supplier in preparing their proposal. Once provided this



Source: Developed by Researcher.

Figure 2.6. Pillars of Federal Procurement Regulation

information, the Government prepared for negotiations with the intent of achieving a contract without the supplier receiving excessive prices and profits. [Ref. 3:p. 45]

TINA became the basis for negotiating major procurements for more than thirty years, and firmly established for Government Contracting Officers the method for determining a fair and reasonable price in sole-source situations. Further, the implementation of TINA required the employment of a legion of accounting and auditing professionals needed to prepare the detailed information to be disclosed to the Government. Further, once the data were provided to the Contracting Officer, the Government employed a group of analysts to interpret the data as well as a dedicated

organization of auditing professionals who assessed the data and made judgements about the business deal once the contract was established. In summary, TINA significantly raised both Government's and industry's cost of doing business; it contributed significantly to increases in disputes concerning allege, defective pricing data; and it has been accused of promoting an adversarial relationship between the Government and firms seeking Government contracts. [Ref. 12:p. 9]

4. Ensuring Consistency in Cost Accounting Practices

The goal of ensuring that the Government pays fair and reasonable prices was further advanced with the implementation of Cost Accounting Standards to provide consistency in cost accounting practices and as a method to equitably allocate costs. [Ref. 3:p. 45] CAS imposed specific guidelines concerning such matters as accounting for the cost of money; the depreciation of capital assets; and the allocation of general overhead for suppliers of goods and services to the Government. Supporters of CAS claim that the establishment of a uniform set of accounting principles helps ensure fair and consistent treatment for the DoD in the pricing and performance of defense contracts. [Ref. 3:p. 45]

Despite the apparent advances provided by TINA and CAS, the imposition of these legislative acts have critics. Opponents of TINA and CAS have cited the acts as barriers to efficient practices within the market system. [Ref. 3:p. 45] Specifically, the implementation of an accounting system within a firm to support both TINA and CAS is considered costly. Further, once implemented, the system is complicated and expensive to maintain. Since the detailed tracking of the firm's operating costs are required only by the Government, the expense artificially increases the firm's overall cost of doing

business, which ultimately artificially raises prices to customers (including the Government). Additionally, opponents of TINA and CAS cite the administrative costs to the Government in auditing and tracking costs as another negative effect of the legislation. [Ref. 3:p. 45] Critics question whether the "savings" realized by the Government in ensuring the accurate and fair allocation of costs and the fair and reasonable prices paid for goods and services exceeds the cost of the bureaucracy required to enforce it. [Ref. 3:p. 45] Finally, critics cite non-quantifiable reductions in competition resulting from TINA and CAS. Potential new entries into the market for Government contracts may discourage firms from seeking an award due to the costly barriers to enter the market imposed by TINA and CAS. [Ref. 12:p. 9] Moreover, potential competitors for a Government contract are discouraged by the possible consequences of providing erroneous information, or information that fails to comply with the Government's administrative requirements, that could lead to charges of defective pricing.

5. Promoting Competition in Federal Procurement

The Federal Government began to realize the effects of reduced competition in the 1980's. Various audits, congressional investigations, and media disclosures revealed that the DoD paid excessive prices for many spare parts and supplies. [Ref. 1:p. 4] The abuses were frequently found to originate from the Government's sole-source reliance on defense contractors. Ultimately, the Secretary of Defense directed the Military Departments and the Defense Logistics Agency to implement 35 procurement initiatives to reduce overpricing.

> The initiatives focused on correcting problems related to over specification, over engineering, small-quantity purchases, inappropriate allocation

> of corporate overhead in pricing individual contract line items, purchasing from other than the actual manufacturer, noncompetitive procurements, and excessive profits. [Ref. 1:p. 4]

The Secretary of Defense's action with regard to improving the Department's procurement practices led to the implementation of the Competition in Contract Act of 1984. CICA and 35 other spare parts procurement initiatives sought to expand the pool of firms competing for the award of a Government contract. The Act included such things as requiring preparation and approval of justifications for procurements using other than full and open competition and established approval requirements for noncompetitive procurements. The Act succeeded in increasing the amount of competition attained in Federal contracts and the Government realized overall reductions in contract costs. [Ref. 1:p. 4]

6. Recognizing the Need to Reform the Procurement Process

The late 1980's witnessed the end of the Cold War and the start of a new era in which the United States remained the only Super Power. Yet despite the reduced threat resulting from the breakup of the Soviet Union and the expected reduction in the military's operational tempo, U.S. military forces remained actively engaged in the Arabian Gulf, Bosnia, and other "hot spots" around the world. One result of these high tempo operations was that the Department had to seek greater cost efficiency measures in response to continuing requirements and decreasing funding.

By the early 1990's, the Government and the defense industry were actively seeking ways to achieve greater efficiencies and cost reductions. The procurement process received intense review, and Congress and the Executive Branch agreed that Reform was needed to make sense out of a complex procurement system characterized by

the proliferation of often contradicting requirements governing almost every aspect of the acquisition process. The Congress commissioned an Advisory Panel on Streamlining and Codifying Acquisition Laws pursuant to Section 800 of the National Defense Authorization Act for Fiscal Year 1991. [Ref. 1:p. 5] The Panel reported its findings in 1993 that recommended a comprehensive overhaul of the federal procurement laws to:

- Improve Government access to commercial technologies.
- Reduce administrative overhead, especially in light of anticipated reductions in the federal workforce; and
- Reverse a perceived trend toward the incremental enactment of procurement statutes without a clear analysis of their impact on the overall acquisition system. [Ref. 13:p. 21]

In 1993, the Government-wide National Performance Review (NPR) reinforced the recommendations made by the Section 800 Panel and called for increased reliance on acquisitions of commercial items, an increase in the simplified acquisition threshold, and implementation other streamlining measures. [Ref. 1:p. 5]

The Secretary of Defense commented on the need for procurement reform by stating,

> Because the world in which DoD must operate has changed beyond the limits of the existing acquisition system's ability to adjust or evolve – the system must be totally re-engineered. If DoD is going to be capable of responding to the demands of the next decade, there must be carefully planned, fundamentally re-engineering or re-invention of each segment of the acquisition process. [Ref. 1:p. 5]

He cited three primary problems with the procurement system:

> 1. DoD was unable to acquire state of the art commercial technology.

2. DoD was often unable to buy from commercial companies-even when their costs were cheaper.

3. DoD's costs of doing business were too great. [Ref. 1:p. 5]

7. Movement Toward Adopting Commercial Business Practices in Government

The Congress responded to the need to reform the procurement process with the passage of Public Law 103-355, the Federal Acquisition Streamlining Act (FASA) which sought to:

> Reduce paperwork burdens, facilitate the acquisition of commercial products, enhance the use of simplified procedures for small purchases, clarify protest procedures, eliminate unnecessary statutory impediments to efficient and expeditious acquisition, achieve uniformity in the acquisition practices of Federal agencies, and increase the efficiency and effectiveness of the laws governing the manner in which the Government obtains goods and services. [Ref. 13:p. 20]

The Act implemented profound change in the Federal procurement process, particularly with regard to the acquisition of commercial items, and the procedures for determining a fair and reasonable price.

Prior to the implementation of FASA, the determination of a fair and reasonable price for negotiated, large dollar value procurements was achieved in one of two ways. First, price reasonableness was determined through competition in the open marketplace. Second, the Contracting Officer was able to require the offeror to submit cost and pricing data for qualifying, non-competitive requirements.

Once given insight into the costs incurred by the offeror, the two sides negotiated a fair and reasonable price for the goods provided to the Government. However, FASA changed the equation, by expanding the definition of a commercial item and raising the thresholds in which cost and pricing data are required. [Ref. 14:p. 13]

The former definition of a "commercial item" in a Federal procurement was based primarily on two conditions: the item had to be sold in substantial quantities to the general public, and the item had to be a commercial off-the-shelf product. [Ref. 14:p. 15] However, with the implementation of FASA the definition was substantially broadened to include:

> (a) Any item, other than real property, that is *of a type* customarily used for non-governmental purposes and –
>
> (1) Has been sold, leased, or licensed to the general public;
>
> (2) Has been offered for sale, lease, or license to the general public;
>
> (b) Any item that has evolved from a commercial item that is sold or offered for sale, as a result of advances in technology or performance, even if not yet available in the commercial marketplace;
>
> (c) Any of the above items even if they require modifications of a type customarily available in the commercial marketplace or minor modifications made to meet unique government requirements; or
>
> (d) Any combination of these items. [Ref. 15:p. 11]

Also included in the definition of commercial item are non-developmental items (Government-unique items) developed exclusively at private expense and sold in substantial quantities, on a competitive basis, to multiple state and local governments. [Ref. 15:p. 11] Further, the post-FASA/FARA revision to Federal Acquisition Regulations (FAR) Part 15, which governs the submission of certified cost and pricing data, states ...

> Cost or pricing data shall be obtained only if the contracting officer concludes that none of the exceptions in 15.403-1(b) applies. However, if the contracting officer has sufficient information available to determine price reasonableness, then a waiver under the exception at 15.403-1(b)(4) should be considered. The threshold for obtaining cost or pricing data is

$500,000. Unless an exception applies, cost or pricing data are required before accomplishing any of the following actions expected to exceed the current threshold or, in the case of existing contracts, the threshold specified in the contract: [Ref. 16:Part 15.404]

Figure 2.7 below represents the changes to FAR Part 15 concerning the submission of cost and pricing data.

	Type of Product	
	Commercial	Military – Unique
Adequate Price Competition	Exempt	Exempt
No Competition (and over $500K)	Exempt If based upon: 1. Established Catalog Price 2. Established Market Price 3. Qualifies as Commercial 4. An Exceptional Case	Required Unless qualifies as an Exceptional Case

Figure 2.7. The Requirement for Cost and Pricing Data [Ref. 3:p. 46]

The requirements set forth in the FASA/FARA legislation have resulted in fundamental changes in the manner in which Government buying professionals approach acquisition. As observed by Gaudio and Trowel…

> The broad definition FASA gave us has reversed the standard government contracting paradigm. Only if the government's requirement does not fall within the very broad definition of commercial items (i.e. it is for a truly government-unique item) will a contract be awarded using the government-unique terms and conditions. [Ref. 15:p. 12]

This change in the Government-contracting paradigm has brought about the need for new training and skills to be developed within the Government's acquisition community. Gaudio and Trowel write,

> Conducting more extensive market research and being familiar with the details of commercial buying and selling practices will be a whole new ball game requiring new skills for government procurement professionals ...an investment in product/market knowledge will be required to achieve the long term benefit of the move to expanded acquisitions of commercial items. [Ref. 15:p. 13]

8. Changing the Government Contracting Paradigm

The acquisition reforms brought about through the passage of FASA and FARA significantly changed the paradigm of the Government buying professional. Before acquisition reform, the Government buyer conducted business within a well-defined, firmly established set of procedures. Individual procurement actions were classified in one of three categories: (1) purchases below the small dollar value threshold, (2) procurements exceeding the small purchase threshold but conducted in a competitive environment (most notably sealed bid), (3) and negotiated procurements, both competitive and sole source. Each of these types of procurements presented unique challenges to the Contracting Officer, but each category also had well-established procedures to ensure that the Government obtained and fair and reasonable prices. In particular, with the adoption of TINA in 1962, a negotiated procurement with a sole- source provider allowed the Government to require the offeror to submit certified cost and pricing data to the Contracting Officer prior to negotiations. The Contracting Officer used these data to analyze the contractor's proposal with specific knowledge of the cost breakdown and proposed profit for the item. The responsibility of the Contracting Officer, prior to acquisition reform, was to negotiate with the offeror to ensure that the Government

obtained a fair and reasonable price and that the contractor did not obtain excessive profits at the taxpayers' expense.

Acquisition reform has profoundly changed the Government's way of doing business with regard to certain negotiated, sole-source procurements. The Government Contracting Officer can no longer require certified cost and pricing data for procurements falling below the $500,000 threshold as written in the Federal Acquisition Regulation (FAR) Part 15. Further, the revision the regulation prohibits the Contracting Officer from requiring certified cost and pricing data for any item covered by the expanded definition of a commercial item. Instead, the Contracting Officer must employ new approaches for determining that the Government obtains a fair and reasonable price for these procurements. In so doing, the Contracting Officer must "continually explore the factors that contribute to the development of a seller's pricing strategy, in an effort to determine what he or she might do differently by understanding the strategy." [Ref. 17:p. 9] Enhancing an understanding of contractors' pricing strategies is the intent of this research.

D. SUMMARY

The evolution in the Federal procurement process has reflected the Government's continuing efforts to implement sound business practices in conducting the business of buying goods for the Government. The Legislative and Executive branches of the Federal Government, combined with input from industry, have played a significant role in bringing about changes which have refined the process to more closely resemble the practices of the commercial sector. Recent acquisition reform legislation, in particular, has significantly advanced the effort by streamlining the procurement process and limited

the requirements on industry to submit detailed cost and pricing data to the Government prior to contract negotiations.

The initiatives, which reduced the reporting requirements on industry, enabled firms to more effectively apply pricing strategies in preparing price quotations for Government contracts. These developments have served to significantly change the paradigm in which federal procurement professionals conduct the procedures of determining a fair and reasonable price for goods procured by the Government. This change in paradigm requires that procurement professionals recognize the pricing strategies applied by firms seeking a Federal contract and understand how to most effectively prepare for negotiations. The next two chapters will examine these strategies and a variety of factors that influence the pricing decisions made by firms.

III. MARKET FACTORS

A. INTRODUCTION

Micro-economic theory suggests that the optimum combination between price and quantity is graphically illustrated at the point at which the supply (S) and demand (D) curves intersect. [Ref. 4:p. 333] This intersection point is also characterized as the point at which marginal revenues equal marginal costs. Figure 3.1 depicts this relationship.

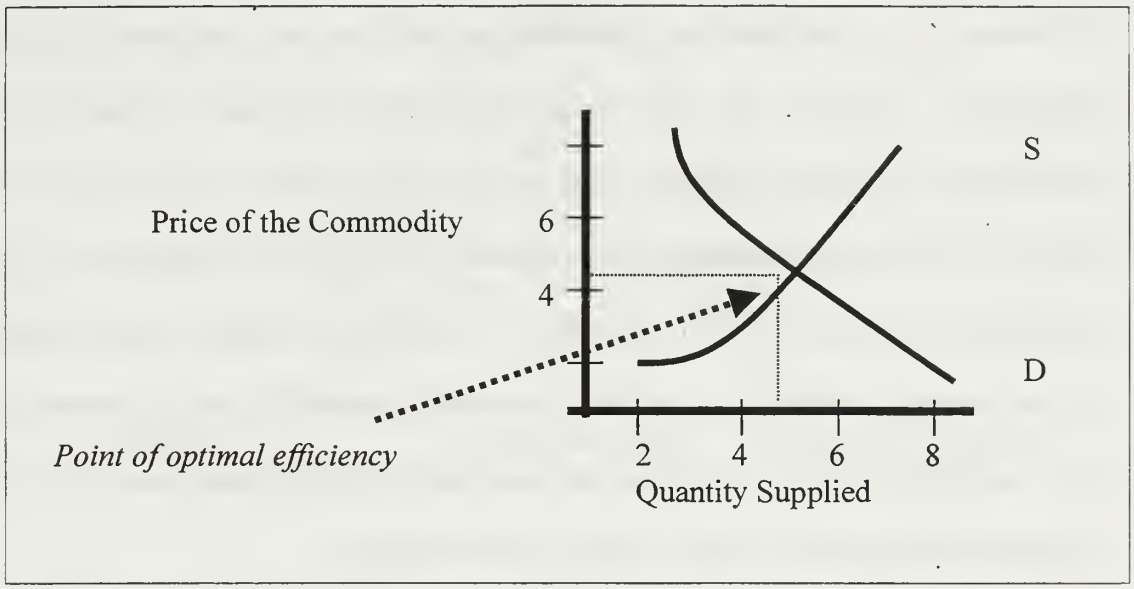


Figure 3.1. Supply and Demand Curves [Ref. 4:p. 113]

The challenge confronting pricing decision-makers is to determine the means of attaining this optimum point. This chapter will review the elements of cost, customer orientation, and competition that contribute to formulating a firm's pricing policy. This review will be used to provide a necessary foundation upon which ten pricing models will be examined. The models being reviewed include three with a cost-based focus and seven

that are most strongly influenced by market forces. These models will provide a basis on which analysis will be presented in the following chapter.

B. FUNDAMENTALS TO PRICING

The job of making a firm's pricing decisions is fundamental to the success of the business. [Ref. 8:p. 9] An effective pricing decision can help assure the success of a particular product line, while failure to price the product properly can result in losses for the firm and threaten the continuation of the product line. In making these important decisions, pricing decision-makers must rely as much on good judgment as on precise calculation. [Ref. 8:p. 9] But the fact that pricing depends on judgment is no justification for pricing decisions based on hunches or intuition. [Ref. 8:p. 9] Good judgment requires understanding and insight into the factors that influence the market-segment in which the firm is competing. Although these factors may be numerous, Figure 3.2 depicts what a manager must consider in determining the price to be charged for a particular product. This section will examine each of the major inputs to the pricing decision making process: cost, customers, and competition.

Once a pricing decision maker is empowered with an understanding of the fundamental importance that cost, customers, and competition play in the pricing process, sound decisions can be made which will best advance the firm's goals.

1. Elements of Cost

In its simplest form, profit equals price minus cost. [Ref. 6:p. 9] Therefore, consideration of cost is unavoidable in making sound pricing decisions. Yet in considering the concept of cost, it becomes necessary to examine the many subsets of cost which contribute to the overall pricing decision. These subsets of cost include:

variable cost, fixed cost, semi-variable cost, total cost, direct cost, and indirect cost. Each of these subsets of cost apply in any pricing decision and, therefore, require a brief description.

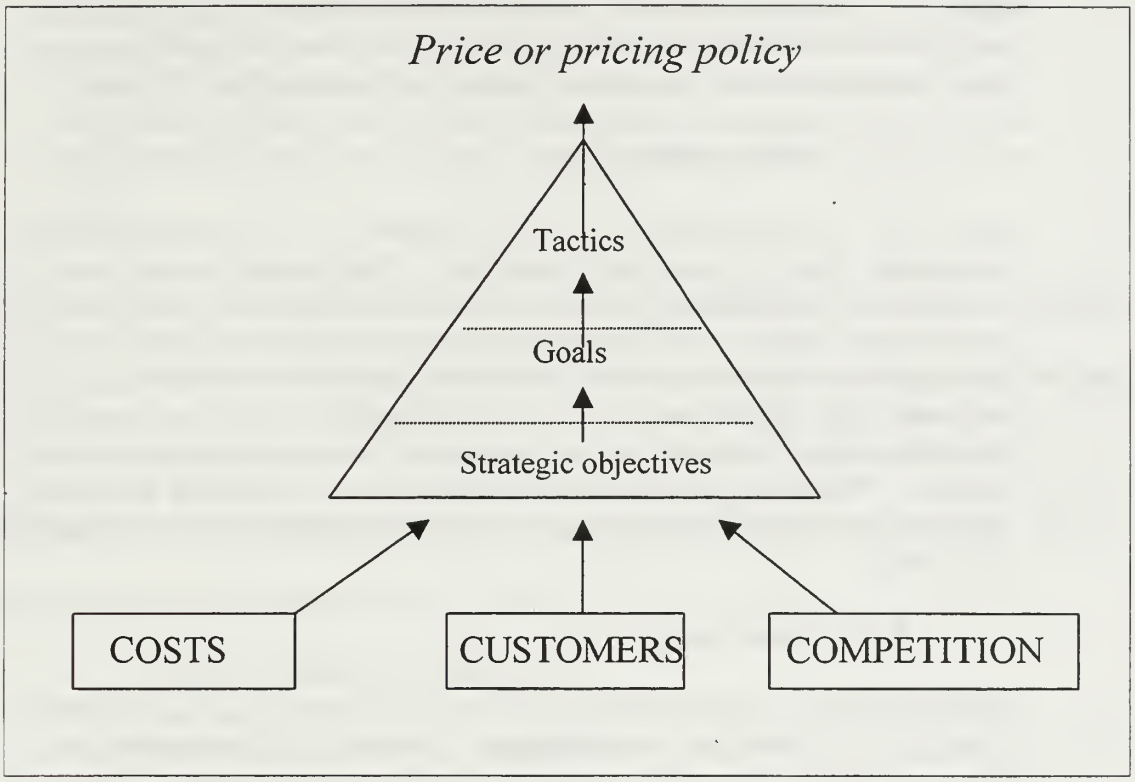


Figure 3.2. Factors to Developing an Effective Pricing Strategy [Ref. 8:p. 10]

a. Variable Costs

> These are items of cost that *vary directly and proportionately with the production quantity* of a particular product. Variable costs include direct labor wages, the cost of materials, and a small number of overhead costs which the supplier incurs in filling an order.... Variable Costs represent money sellers can keep if they do not perform a specific contract, and money they must pay if they do perform it. [Ref. 10:p. 301]

b. Fixed Costs

Fixed costs *do NOT vary with volume*, but rather change over time. Fixed costs are costs sellers must pay simply because they are in business. They are a function of time and are not influenced by volume of production.... Fixed costs generally represent either money the seller has already spent for buildings and equipment or money the seller will have to spend in the future for unavoidable expenses such as taxes and rent, regardless of the plant's volume of production. Other fixed costs include advertising and research and development, which may be increased or decreased from one time period to another, regardless of production volume. [Ref. 10:p. 301]

c. Semi-variable Costs

Generally, it is not possible to classify all production costs as being either completely fixed or completely variable. Many others, termed semi-variable costs, fall somewhere between these extremes. Costs such as maintenance, utilities, and postage are partly variable and partly fixed. Each is like a fixed cost, because its total cannot be tied directly to a particular unit of production. Yet, it is possible to sort out specific elements in each of these costs that are fixed as soon as the plant begins to operate. When the fixed portion is removed, the remaining elements frequently do vary closely in proportion to the production volume. [Ref. 10:p. 301]

d. Total Costs

The sum of the variable, fixed, and semi-variable costs comprises the total costs. As the volume of production increases, total costs increase. However, the cost to produce *each unit* of product decreases. This is because the fixed costs do not increase; rather, they are simply spread over a large number of units of product.... Because it is difficult to allocate costs specifically as fixed, variable, and semi-variable, accountants generally classify costs into two categories – direct costs and indirect costs. [Ref. 10:p. 301]

e. Direct Costs

These are costs that are specifically traceable to or caused by a specific project or production operation. Two major direct costs are direct labor and direct materials. Although most direct costs are variable, conceptually, direct costs should *not* be confused with variable costs; the two terms are rooted in different concepts. The former relates to *traceability* of costs to specific operations, while the latter relates to the *behavior* of costs as volume fluctuates. The salary of a production

supervisor, for example, can be directly traceable to a product even though he or she is paid a fixed salary regardless of the volume produced. [Ref. 10:p. 301]

f. Indirect Costs (Overhead)

These are costs that are associated with or caused by two or more operating activities "jointly," but are not traceable to each of them individually. The nature of an indirect cost is such that it is not possible (or practical) to measure directly how much of the cost is attributable to a single operating activity. Indirect costs can be fixed or variable, depending on their behavior (e.g., the portion of energy consumption that varies with the level or production is a variable overhead.) [Ref. 10:p. 301]

In summary, the recognition of the firm's costs and the distinctions between the subsets of costs is essential to enabling the pricing decision-maker to make sound business decisions. An understanding of the elements of a firm's costs is required to prevent the pricing process from becoming, as Nagle and Holden suggest, "nothing more than an exercise in the blind leading the blind." [Ref. 8:p. 9]

2. Understanding the Customer

A fundamental dimension to a pricing decision-maker's understanding of the overall market is consideration of the composition of the customer base. Without accurately assessing the goals and motivations of the customer, a firm's managers may make improper assumptions in determining the firm's pricing strategies. Fredrick E. Webster and Yoram Wind have written on the subject of organizational buying behavior and have segmented the subject into three major types of conceptual models. These models include,

- Task-oriented.
- Non-task oriented.
- Decision-process. [Ref. 18:p. 16]

They describe the task and non-task models in the following manner:

> Task models are those emphasizing task-related variables (such as price) whereas the non-task models include models that attempt to explain organizational buying behavior based on a set of variables (such as buyer's motives) which do not have a direct bearing on the specific problem to be solved by the buying task, although they may be important determinants of the final purchasing decision. [Ref. 18:p.16]

The organizational buying behavior models provide a necessary framework upon which pricing decision-makers make useful decisions in developing their pricing strategies. This section will briefly review each of the three models as a means of developing an understanding of the rationale applied by pricing decision-makers in industry.

a. Task-Oriented Models

Webster and Wind define task-oriented models as, "models, drawn primarily from economics or the behavioral sciences and focus on situation-specific variables associated with a particular purchase." [Ref. 18:p. 16] They further address this concept by introducing and explaining a number of other models that support the notion that buyers act intelligently in selecting their suppliers. They suggest that the buyer will seek to attain the required goods and/or services at the minimum price. Further, they introduce the concept of a lowest total cost model, which expands the definition of lowest price to include opportunity costs for low quality, delivery, reliability, and other non-price variables. Both of these models, according to Webster and Wind, assume perfect competition, perfect information, and perfect product

substitutability; conditions which they contend rarely reflect actual conditions. [Ref. 18:p. 16]

They continue to discuss the task-oriented models by introducing the concepts of the rational-buyer model and loyal source model. They describe the rational-buyer as a purchaser who assesses all the alternatives, and the expected pay-off associated with each alternative; the purchase decision is then made to maximize expected gain. [Ref. 18:p. 16] This model provides a framework in which to contrast the presumed differences between consumer buying patterns and organizational buying patterns, like those of a corporation. Consumer buying patterns are frequently believed to be based upon a buyer's emotional response to a marketing campaign, while those buying patterns of an organizational buyer (like a corporate procurement office) theoretically apply a more scientific methodology to buying decisions. Similarly, they suggest that the influence of source loyalty plays a significant factor in buying behavior. They write,

> The source loyalty model assumes that inertia is a major determinant of buying behavior and stresses behavior, the tendency to favor previous suppliers. There are a number of reasons why this is a reasonably good model. First, it recognizes that much organizational buying is routine decision making. Second, it is consistent with the observation that purchasing managers are busy people who try to establish relationships with vendors that are likely to be self-perpetuating and easily maintained. Third, it is consistent with the notion of "satisfaction" as an alternative to maximization of behavior. [Ref. 18:p. 16]

Closely related to the concept of source loyalty is that of source credibility. Webster and Wind believe that credibility also plays a significant role in a buyer's decision making process. They state,

> Generally speaking, the better a company's reputation, the better are its chances (1) of getting a favorable *first hearing* for a new product among

> customer prospects, and (2) of getting early adoption of that product. Vendor's reputation influences buyers, decision makers and the decision making process. [Ref. 18:p. 16]

In summary, the task-oriented buyer is concentrated on buying the goods necessary to complete a job. While there may be slightly different focuses on the model, one focusing on procuring goods at the minimum price and the other focusing on credibility, both work toward achieving the goods or services needed to complete a project.

b. Non-task Oriented Models

According to Webster and Wind, non-task oriented models, "focus primarily on non-economic determinants of behavior, and tend to be more complicated than task-oriented models." [Ref. 18:p. 21] This group of models is dominated by concepts associated with organizational psychology and the behavioral sciences. The concept of non-task oriented pricing basically focuses on two specific models. First, the perceived-risk model "postulates that buyers are more motivated to reduce their perceived risk when buying than to maximize any potential pay-off." [Ref. 18:p. 22] The model emphasizes the tradeoffs associated with decision-making, rather than attempts to optimize the outcome. Webster and Wind clarify the notion of perceived risk reduction by developing the following classifications:

- Information acquisition and processing,
- Goal reduction,
- Loyalty, and
- Investment reduction. [Ref. 18:p. 22]

They conclude their discussion of the perceived-risk model by stating,

> ...all organizations consist of people who make the buying decisions. Sometimes these people are at considerable personal risk. For example, the decision-maker runs the risk of purchasing a product that does not perform reliably or economically. Also, he or she incurs the psychosocial risk of how others will view the decision.... The concept of perceived risk is as conceptually robust in industrial buying behavior as it is in consumer buying behavior. [Ref. 18:p. 22]

Given this insight in the tendency to avoid risk and, instead, favor a known product or supplier, a firm's pricing decision-makers can capitalize on this tendency by being the first to supply a consumer's need and provide a satisfactory level of quality. According to the perceived-risk model, successfully meeting the customer's need in a previous procurement will significantly enhance the seller's opportunity to win follow-on business, perhaps at even a reasonably higher cost to the consumer. Ultimately, the consumer will perform a risk-benefit analysis to determine if a potential cost savings or acquiring a possibly higher quality product outweighs the risks of buying an unknown product and risking dissatisfaction with the decision.

c. Decision-Process Model

The decision-process model analyzes the organizational buying *process* empirically. Since the development of the decision-process model in the 1950's, several theorists have examined and refined the concept. The theorists' reviews have looked specifically at the following aspects of the decision process:

- Routine processes that recur within the organization at various stages in the decision,
- Communication processes, which represent the information flow within the organization; and
- Problem-solving processes, which attempt to locate solutions to the problem. [Ref. 18:p. 24]

The review of the decision process continued and included several theorists who Refined the concept and which led to the creation of the Buyphase Model which consists of:

1. Anticipation or recognition of a problem and a general solution,
2. Determination of characteristics and quality of needed item,
3. Description or characteristics and quantity of needed item,
4. Search for and qualification of potential sources,
5. Requisition and analysis of proposals,
6. Evaluation of proposals and selection of supplier(s)
7. Selection of an order routine, and
8. Performance feedback and evaluation. [Ref. 18:p. 25]

The Buyphase Model is useful in providing a general perspective from the internal purchasing viewpoint. However, in 1968, theorists named Ozanne and Churchill sought to expand the general understanding of the decision-process model by proposing an additional model they term industrial adoption-process model. This model, which is oriented toward external factors, primarily marketing communication, has five phases: awareness, interest, evaluation, trial and adoption. [Ref. 18:p. 25] They concluded that the decision-maker's need for all kinds of information increases as the buying process progresses from awareness to adoption.

Ultimately, both the Buyphase and the Industrial Adoption-process Model were combined to form the Purchase Decision-Process Model, as depicted in Figure 3.3.

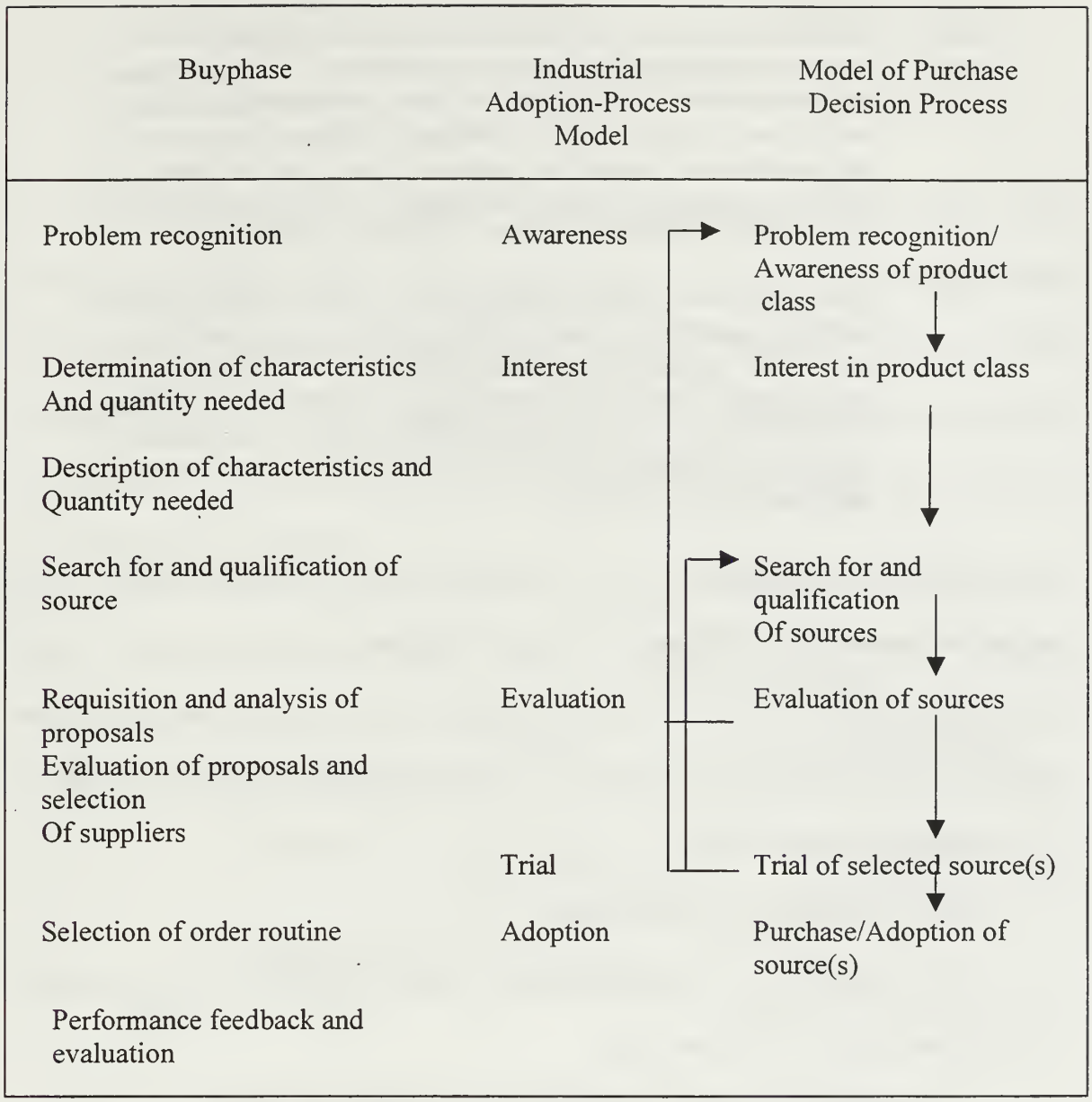


Figure 3.3. Development of the Purchase Decision-Process Model [Ref. 18:p. 27]

The model emphasizes the following three major points:

1. Problem recognition and the awareness of product class are both presented as the first stage, because either element may initiate the process; problem recognition may lead to awareness, or vice versa. Both elements must be present in order to move to interest in product class. The symbiotic relationship of these initial substages is not Reflected in previous models of the buying process.

2. Both the search stage from Buyphase and the trial stage from the industrial adoption-process model are included. The search phase recognizes that the buyer plays an active role in the process by seeking out information about potential sources of supply. The trail phase demonstrates that, because of the high risk associated with many industrial purchase decisions, a strategy of trial before adoption is implemented for many categories of purchases.

3. Finally, the model includes feedback loops. Two emanate from the trial stage; one returns to the beginning of the process and the other reenters the process at the search phase. A third feedback loop may occur at the evaluation stage and lead back to the problem-recognition stage. Each of these feedback loops is predicated on some degree of dissatisfaction with the results of the decision to that point. [Ref. 18:p. 27]

The Purchase Decision-Process Model is instructive because it provides insight into the myriad of factors that influence the buying decision process rather than simply considering the motivations of a buyer. Provided with this insight, pricing decision-makers will align their actions to support the buyer's decision processes in an effort to promote the sale of their products.

3. Competitive Environment

A firm making pricing decisions is, inevitably, impacted by the competitive nature of its market. As Johnson writes,

> ...the essence of competition is that prices are set in greater or less degree by the market: no manufacturers in a competitive market have complete autonomy in pricing, but there are degrees of autonomy. At one end of the spectrum you have what economists call perfect competition, where the seller has no autonomy but has to sell at the price fixed by the market if he wants to make a sale. At the other end you have monopoly, where the seller has complete autonomy. In between these two extremes is a range of varying degrees of autonomy, which economists call imperfect competition. [Ref. 19:p. 326]

He continues by describing perfect competition as a condition in which,

> ...a firm's demand curve is horizontal, i.e., where the amount it puts on the market has no effect on the market price. This state of affairs can exist only where you have three conditions fulfilled at the time, viz: (1) free entry, (2) homogeneous product, and (3) each seller is small in relation to the total market. [Ref. 19:p. 326]

In today's market place the examples of perfect competition are quite limited. The commodity markets, through which market prices are fixed at auction, is one of the few areas where a condition resembling perfect competition still exists. [Ref. 19:p. 327] Therefore, the focus of this research will be on the areas of imperfect competition, and monopoly. As Figure 3.4 illustrates, the marketplace can be roughly characterized in only a few major categories.

		TYPE OF MARKET	
		DEFENSE	COMMERCIAL
Sellers	Multiple	Monopsony Weapon System Concept Exploration	Free Market Commodities, Commercial Products
	Two/Several	Duoploy (Two)	Oligopoly Dominant Firms Produce Majority of Products
	One	Bilateral Monopoly Sole-Sourced Contract Contract Modifications	Monopoly Sole-Sourced Commercial Products, Utilities
		One	Multiple
		Buyers	

Figure 3.4. The Marketplace [Ref. 3:p. 44]

a. Imperfect Competition and Oligopoly Markets

Imperfect competition is the economic environment in which one of three types of conditions describes the market. These conditions include:

- Oligopoly with identical products.
- Oligopoly with differentiated products.
- Many sellers of differentiated products. [Ref. 19:p. 327]

The term "oligopoly" means:

> ...a market structure in which there are relatively few firms that have enough market power that they may not be regarded as price takers (as in perfect competition) but are subject to enough rivalry that they cannot consider the market demand curve as their own. [Ref. 4:p. 263]

The American automotive industry is general cited as the best example of an oligopoly. In this market there are only a few major producers of automobiles, yet their cumulative sales figures represent the vast majority of the automobiles bought in the country. However, despite the few number of competitors, no one automobile manufacturer has the ability to significantly and independently raise prices without fear of change in its demand curve and a potential loss of sales to one of its competitors. Thus, within an imperfect competition market, economic market forces tend to prevent arbitrary and frequent shifts in prices. As Lipsey and Steiner write,

> One of the most striking contrasts between perfectly competitive and oligopolistic markets concerns the behavior of prices. In perfect competition prices change daily, even hourly, in response to changes in demand and supply. Oligopolistic prices change less frequently. [Ref. 4:p. 263]

Imperfect competition best describes the majority of markets in which the Government seeks goods and services. However, there are exceptions in which Government must

seek to procure goods and services in neither a perfectly competitive or imperfectly competitive market.

b. Monopoly

A monopolistic market is one in which, "one seller controls the entire supply of a particular commodity, and thus is free to maximize its profits by regulating output and forcing a supply-demand relationship that is most favorable to the seller." [Ref. 4:p. 297] Lipsey and Steiner state that the theory of monopoly leads to three principal predictions:

1. Where monopoly power exists in industry, it will lead to a restriction on the flow of resources into the industry and thus to the employment of fewer resources than would be used under competitive conditions.

2. Consequently firms with monopoly power will be able to charge higher prices and will be able to earn profits in excess of opportunity costs.

3. Their owners will command a larger share of the national income than they would under conditions of competition. In short, an economy characterized by firms with monopoly power will lead to a different allocation of resources and a different distribution of income than will an economy composed largely of competitive industries. [Ref. 4:p. 297]

There are few examples of monopolistic industries in the American economy. In fact, due to the potential negative economic consequences of a monopoly, the Federal Government has adopted legislation that controls the development of monopolies in the American economy. Specifically, the Sherman Antitrust Act of 1980, the Clayton Antitrust Act of 1914, the Federal Trade Commission Act of 1914, the Celler-Kefauver Act of 1950, and the Hart-Rodino Antitrust Improvement Act of 1976 are examples of the Government's legislative efforts to curtail the development of monopolies within the

economy. However, despite the legislative initiatives put forth by Congress, a condition resembling a monopoly remains common within the area of Federal procurement, as the Government continues to buy goods and services on a sole-source basis from firms who yield monopolistic influence over the markets. In one response to this condition, the Government enacted the Truth In Negotiations Act of 1962, which required firms (particularly sole-source suppliers) to provide the Government certified cost and pricing data for qualifying procurements. These data provided the Contracting Officer insight concerning the firm's cost structure and pricing policies and was used as a powerful tool in preparing the Government for negotiations. However, recent acquisition reform legislation has substantially reduced the Contracting Officer's authority to require submission of certified cost and pricing data and, instead, instructs the Contracting Officer to seek alternative means of preparing for negotiations and ultimately determining a fair and reasonable price.

c. Monopsony

Lipsey and Steiner define monopsony as:

> ...a market situation in which there is a single buyer or group of buyers making joint decisions. Monopsony and monopsony power are equivalent on the buying side of monopoly and monopoly power on the selling side. [Ref. 4:p. 951]

The concept of monopsony is germane to the Department of Defense, as it acts as a monopsony power in the procurement of weapon systems and other military unique requirements.

C. SELLER'S STRATEGIC OBJECTIVES

A firm's strategy formulation begins with setting objectives. As Nagle and Holden write, "strategic objectives are general aspirations toward which all activities in the firm, not only pricing, are directed." [Ref. 8:p. 10] A firm's strategic objectives are necessary in providing direction and purpose to the firm's operations. With regard to a firm's pricing strategy, attention is generally directed to the firm's ability to produce profits. Without a profit making capability, potential investors would not be compensated for the risk of investing in the firm and would be dissuaded from investing in the future. The firm's management challenge, therefore, is to determine the pricing strategies that will maximize its earnings and allow it to attract future investors to support expansions of the business. [Ref. 20:p. I-6] The means through which the firm accomplishes its pricing objective is developing a pricing strategy that will cover its operating costs and contribute to attaining the firm's operational objectives. [Ref. 20:p. I-6]

A firm's operational objectives may be diverse and may change as the economic environment changes. Generally, however, a firm's operational objectives include:

- Short-term and/or long term profitability
- Market share
- Long-term survival of the firm
- Product quality
- Technological leadership
- High productivity. [Ref. 20:p. I-6]

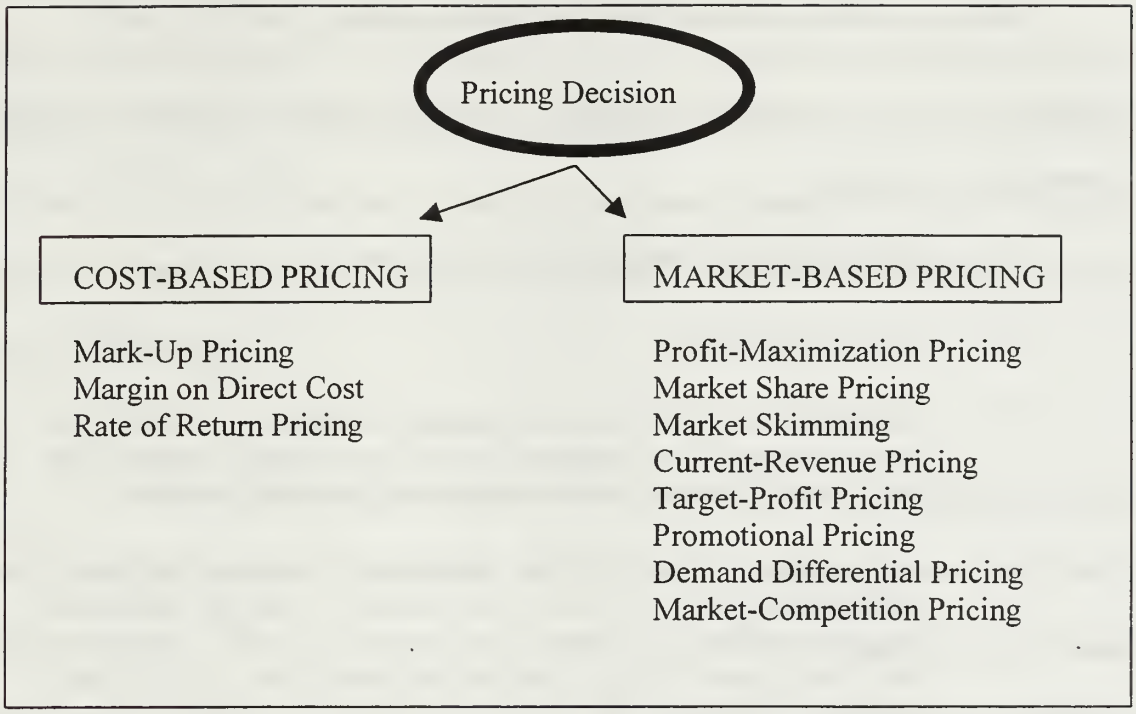
As Nagle and Holden write,

> There are many objectives and goals that management can pursue, but only a subset of these is profitably attainable in a particular environment. ...Objectives and their corresponding goals cannot be judged solely by the desirability of achieving them; they must also be judged by the probability that they can be profitably achieved. A substantial increase in market share is a reasonable pricing goal in some cases, but it is clearly impractical when the firm has opportunistic competitors with lower incremental costs. Unless the firm can reduce its costs, it must find a segment that it can attract with a better product or distribution; it cannot afford to compete on price. Even for products without competition, it is foolish to set market share goals for pricing when most potential customers are not price sensitive. In this environment, market-share goals should perhaps be part of the distribution and promotional strategies rather than the pricing strategy. [Ref. 8:p. 11]

Thus, the firm's objectives are intricately combined with its pricing and marketing decisions. A firm which successfully assesses its environment in formulating its objectives will most likely choose pricing decisions that will best achieve the objectives.

D. PRICING STRATEGIES

Pricing strategies are generally divided into two categories, cost-based and market-based. Figure 3.5 illustrates the options available to a firm:



Source: Developed by Researcher.

Figure 3.5. Categorizing the Pricing Models

1. Cost-Based Pricing

A firm's decision to use a cost-based pricing strategy is based primarily on a concern for assuring that the firm meets all its expenses in producing goods for consumers. As Nagle and Holden write,

> Cost-based pricing is, historically, the most common pricing procedure because it carries an aura of financial prudence. Financial prudence according to this view, is achieved by pricing every product or service to yield a fair return over all costs, fully and fairly allocated. [Ref. 8:p. 3]

The advantage to a cost-based pricing strategy, as discussed by Oxenfeldt and Baxter is,

> The main attraction of cost-plus is, of course, that it offers a means by which plausible prices can be found with ease and speed, no matter how many products the firm handles. Moreover, its imposing computations

look factual and precise, and its prices may well seem more defensible on moral grounds than prices established by other means. [Ref. 19:p. 403]

The support for a cost-based pricing system is further discussed by Brooks as he lists its advantages. He writes,

Cost-oriented pricing is pragmatic for several reasons:

1. It is relatively easy.

2. Businessmen (who don't operate in a vacuum and *should* be reasonably good at estimating sales) can typically estimate the units that will be sold during a period with tolerable precision.

3. The resulting price is often surprisingly close to the profit-maximizing price – at least close enough so that the additional marginal effort or research necessary to define the profit-maximizing price exactly may not be justified on a cost/benefit analysis. [Ref. 6:p. 112]

2. Cost-Based Pricing Models

The cost-based pricing concept originates with a focus on the product and the costs associated with making the product available to the consumer. As Figure 3.6 depicts, under a cost-based scenario the producers begin with an idea of a product that has utility to potential consumers.

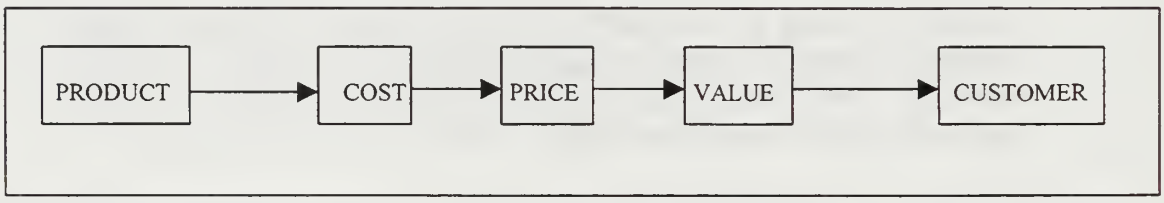


Figure 3.6. Role of Pricing Product Development Cost-Based Pricing [Ref. 8:p. 5]

After the product is clearly defined, the firm seeks to determine the costs associated with the product at a projected level of production needed to support anticipated demand or to conform to the firm's existing production capabilities. Once information is gathered for the projected level of production, the firm computes its indirect and direct costs and determines which of the cost-based pricing models to apply in establishing the selling price for the product.

a. Mark-Up Pricing

Mark-up pricing is defined as "the establishment of prices based on direct cost or total cost plus a percentage mark-up." [Ref. 20:p. I-9] There are two variations of mark-up pricing. The first method uses direct costs to establish a pricing base and adds a percentage designed to include both indirect costs and profit. The alternative method is for total cost (including both direct costs and indirect costs) to be used as a pricing base with an additional percentage added to the base to include profit. [Ref. 20:p. I-9] Appendix A provides an example of the methodology applied in determining the sale price in a mark-up pricing strategy. The example was provided in the writings of H.P. Kelley in his essay titled, "Cost-Price Squeeze: How to establish selling prices." [Ref. 19:p. 373]

Kelley writes that in a mark-up pricing situation the seller assumes that the profit to be derived from each product should be the same percentage of total cost. In other words, two products with the same total cost would have the same selling price even though the raw material cost of one product might be substantially different than the raw material cost of the other product. [Ref. 19:p. 373] Also, with this method, "no distinction is made between products that require a large investment in manufacturing

facilities as contrasted with products where the investment is relatively small." [Ref. 19:p. 373]

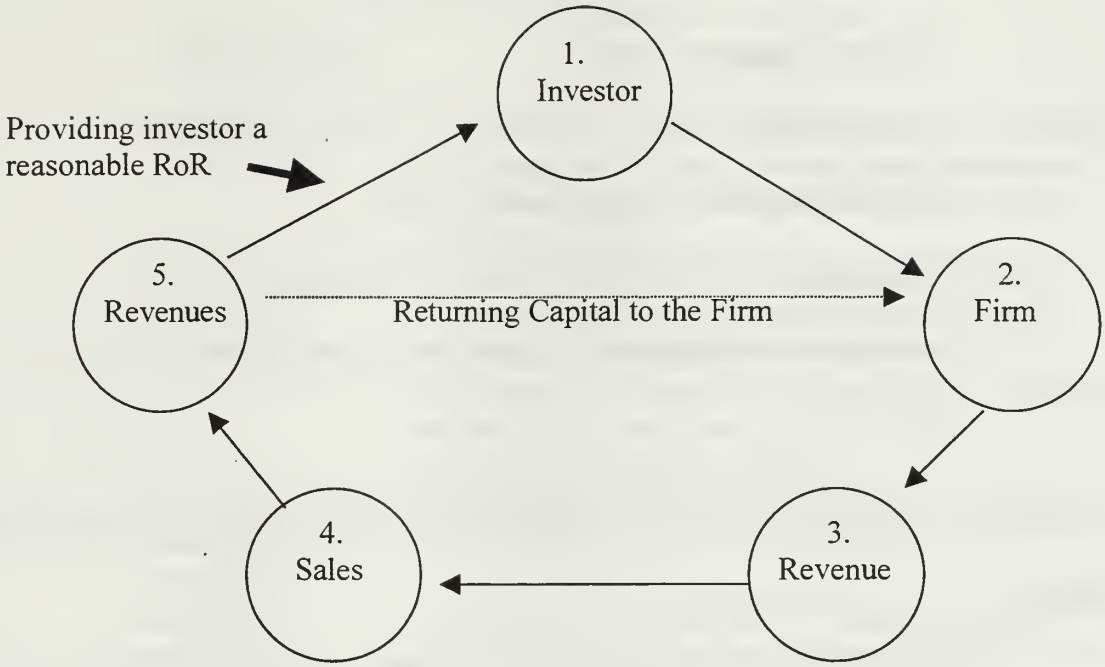
b. Margin On Direct Cost Pricing

Similar to mark-up pricing, margin on direct cost pricing is based on the relationship between cost and profit. [Ref. 20:p. I-11] The margin on direct cost strategy applies to the level of direct cost as base and applies a percentage (margin) to the base to determine the final selling price. The methodology for computing the margin on direct costs is as follows:

1. Estimate the sales volume.
2. Estimate direct cost at the estimated sales volume.
3. Determined the margin rate to be used.
4. Calculate the selling price by applying the margin rate to the product cost. [Ref. 20:p. I-11]

c. Rate of Return Pricing

The rate of return (RoR) method of pricing also has similarities to the mark-up pricing method in that the estimated costs act as the basis for calculating the selling price. However, rather than seeking a specific mark-up or margin on the sale of each item, rate of return pricing seeks to achieve a specific level of profit for a prescribed amount of investment used to make a volume of the product available for sale. In other words, "rate of return is defined as the ratio of profits to invested capital." [Ref. 4:p. 306] Thus, the rate of return pricing strategy more closely aligns the firm's pricing decision to a specific profit objective needed to attract investors to the firm. Figure 3.7 illustrates the relationship between the factors involved in rate of return pricing.



Source: Developed by Researcher.

Figure 3.7. Flow of Money in a Rate of Return Scenario

Rate of return pricing is a common practice within several elements of the defense industry, according to several respondents interviewed by the researcher. A firm's senior management frequently establishes an expected return on revenue for a product line. The product lines' managers are ultimately evaluated, in part, by the success with which they achieved the return on revenue or return on investment goals established by upper management. A product line failing to delivery a satisfactory Rate of Return may be considered for management changes or the product line may be discontinued entirely.

The methodology involved in conducting a rate of return pricing strategy is as follows:

1. Determine desired rate of return on investment.
2. Estimate investment required.
3. Estimate level of sales.
4. Estimate unit cost at the projected sales level.
5. Calculate desired unit profit.
6. Calculate unit selling price (estimated cost + desired profit). [Ref. 20:p. I-13]

Appendix C provides an example of the calculations involved in a rate of return pricing scenario.

Despite the apparent appeal of cost-based pricing, the methodology has drawbacks. As discussed in the earlier portion of the chapter, a cost-based pricing strategy relies heavily on the firm's ability to accurately report costs and make accurate projections for variable costs and anticipated sales. Failure to achieve accuracy in either of these areas will result in the firm's failure to meet its pricing objectives. Figure 3.8 outlines some of the potential outcomes of failing to make accurate cost and sales projections.

Miscalculation	Result
Projected demand overstated	Excess inventory will result. Producers will be forced to decrease price in order to reach equilibrium with consumer demand. Predetermined amount of profit will not be realized.
Projected demand Understated	Available inventory will be insufficient to meet consumers' demand. The selling price of the good will increase until supply and demand reach equilibrium. Predetermined amount will be exceeded but may fail to reach potential profit if the miscalculation had not occurred.
Projected production costs understated	Desired Mark-up percentage will not be attained. Profits will fail to meet anticipated level.
Projected production costs overstated	Actual mark-up percentage will exceed anticipated percentage and the firm will realize excess profits to the unexpected efficiency of the manufacturing process.

Source: Developed by Researcher.

Figure 3.8. Effects of Miscalculation or Erroneous Assumptions in a Mark-Up Pricing Strategy

Nagle and Holden address the problems involved in a cost-plus environment. They write,

> The problem with cost-driven pricing is fundamental. In most industries it is impossible to determine a product's unit cost before determining its price. Why? Because unit costs change with volume. This cost change occurs because a significant portion of costs are "fixed" and must somehow be "allocated" to determine the full unit cost. Unfortunately, since these allocations depend on volume, which changes with changes in price, unit cost is a moving target.
>
> To "solve" the problem of determining unit cost, cost-based pricers are forced to make the absurd assumption that they can set price without affecting volume. The failure to account for the effects of price on

> volume, and of volume on costs, leads managers directly into pricing decisions that undermine profits. [Ref. 8:p. 3]

Yet despite the potential miscalculations and inaccurate projections which are at the heart of the cost-based methodology, its practice remains common within industry. The reason for the method's use (particularly in the defense industry) is connected to the Government's historic use of certified cost and price data which required firms to maintain detailed accounting records of the costs associated with a product line. These records served as a basis for negotiating price and conducting a fair and reasonable price determination. Consequently, the firm's level of profit (and therefore RoR) were fundamental considerations as the firm prepared for negotiations.

3. Market-Based Pricing Models

The market-based pricing model originates with a focus on the customer and the anticipated value the customer would place on a proposed product. As Figure 3.9 depicts, under a market-based scenario the producers begin with analysis of the customer and the environmental conditions that impact the customer's determination of an item's potential value to the firm.

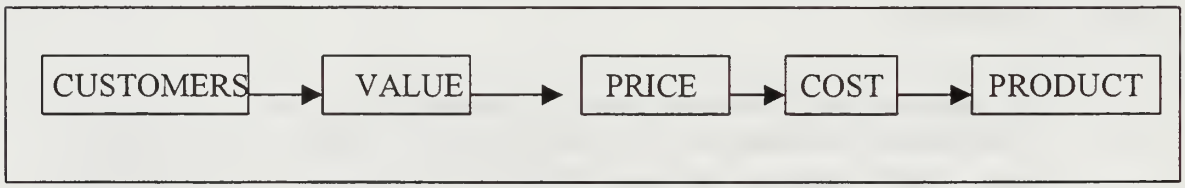


Figure 3.9. Role of Pricing Product Development Market-Based Pricing [Ref. 8:p. 5]

After the customer and the environmental conditions surrounding the customer have been analyzed, the firm seeks to identify a selling price it believes would best fit the anticipated value the customer would have for the product. Once the proposed selling

price has been identified, the proposed item is analyzed to determine the costs involved in its production. If the projected level of profit for producing the item satisfies the firm's management objectives or if the product has long-term benefits to the firm, production of the product will begin and the firm must choose a basis for establishing the product's actual selling price. There are seven market-based pricing models from which the firm can establish the selling price: profit-maximization pricing, market-share pricing, market skimming, current-revenue pricing, target-profit pricing, promotional pricing demand differential pricing, and market competition pricing.

a. Profit-Maximization Pricing

The understood purpose for a firm competing in the free-market is to make profits. A firm which is successful in maximizing its earnings potential will attract investors and thrive in comparison to a firm which fails to deliver profits to investors and cannot attract the necessary capital to expand its production. One of the means used by firms seeking to achieve its earnings potential is the application of a profit-maximization policy.

A profit-maximizing firm understands the economic relationship between price and demand: as price rises demand will fall, and as price falls demand will rise. The challenge, therefore, in a profit-maximizing strategy is to determine and apply the optimum combination of price and quantity to achieve the point of highest efficiency on the supply and demand curves as illustrated in Figure 3.10.

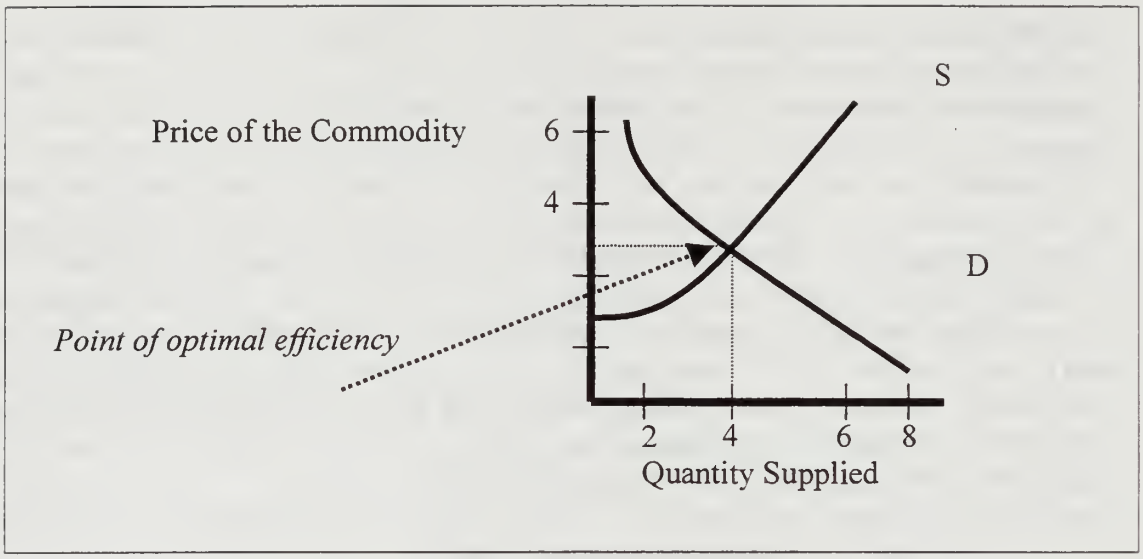


Figure 3.10. Supply and Demand Curves [Ref. 4:p. 113]

On the graph illustrated above, the intersection point between the supply and demand curves represents the profit maximizing point. At this point, the graph reflects a production quantity of four and a price per unit of $5, for a total revenue of $20. Alternatively, the firm could have chosen a production quantity of three and a selling price of $6 for total revenue of $18 or a production quantity of seven and a selling price of $2 for total revenue of $14. However, any combination other than the point of intersection fails to deliver the maximum profits at that given point in time.

A profit maximizing firm must remain constantly aware of changes in the demand curve and be flexible to adjust quantity accordingly in order to maintain the point of intersection. For example, Figure 3.11 illustrates a shift in the demand curve to the right reflecting increased demand for the product.

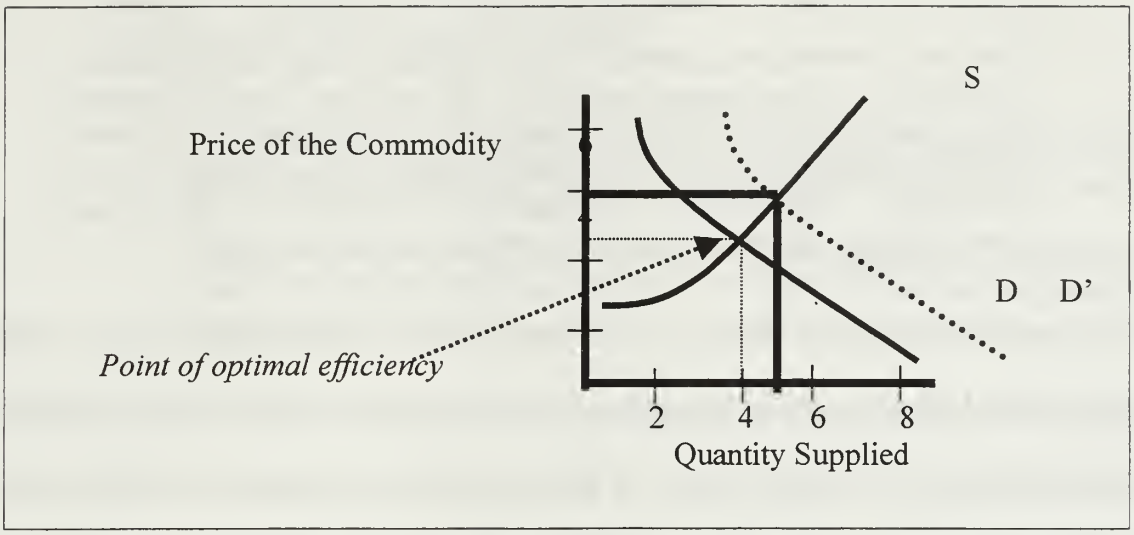


Figure 3.11. Supply and Demand Curves [Ref. 4:p. 121]

In the new scenario, the optimum point has changed. Now, in order to maximize profits, the firm must produce five units and charge $6 each in order to obtain its maximum revenue of $30. If the firm fails to adjust its level of production in response to a change demand, the firm will continue to produce four units and receive $6 each for a total revenue of $24. In that case the firm fails to maximize its own revenues, and also forces the customer to seek another source to satisfy the demand for the two additional units. Consequently, a firm engaged in a profit-maximizing strategy must remain continually sensitive to the impact of changes in customer's demand. [Ref. 20:p. I-16] Additionally, a profit-maximizing strategy is only effective if the firm's competitors react relatively slowly to price changes. [Ref. 20:p. I-16] If the firm's competitors respond quickly to price changes, the profit maximizing strategy cannot work because the firm will not be able to adjust the quantity supplied fast enough to keep pace with the change in price.

As stated in the Government's Contract Pricing Reference Guide,

> The profit maximizing strategy is not commonly seen in Government contracting. In Government contracting, the purchase quantity estimates are generally fixed, based on the needs of the Government. No matter how low the offeror's price, the quantity acquired by the Government does not change. Thus, there is no advantage to the offeror to offer a price lower than that necessary to win the contract. [Ref. 20:p. I-16]

The profit-maximization strategy focuses attention on the relationship between supply and demand in determining the price a firm should charge for its product. With an understanding of this relationship, the firm can adjust the quantity available so as to efficiently respond to the consumer's demand and maintain the highest level of profit.

b. Market-Share Pricing

Market-share pricing is based on the assumption that long-run profitability is associated with market share. Firms applying the market-share strategy seek to capture an increasing percentage of the market through "market penetration." Penetration pricing is defined as "a method to diffuse the appeal of the product rapidly through low initial pricing: then, once the market is 'penetrated' to take advantage of cost reductions and/or price increases to generate profits." [Ref. 21:p. 7] The strategy is also aimed at discouraging potential competitors from entering the market due to apparently low profit margins.

The level of competition is key in applying a market-share pricing strategy. As Nagle and Holden write,

> For penetration pricing to succeed, competitors must allow a company to set a price that is attractive to a large segment of the market. Competitors always have the option of undercutting a penetration strategy by cutting their own prices, thus preventing the penetration pricer from offering a better value to another segment of the market. Only when competitors

lack the ability or incentive to do so is penetration pricing a practical strategy for gaining and holding market share. There are two common situations in which this is likely to occur:

- When the firm has a significant cost advantage and/or a resource advantage so that its competitors believe they would lose if they began a price war.
- When the firm is currently so small that it can significantly increase its sales without affecting the sales of its competitors enough to prompt a response. [Ref. 8:p. 160]

Therefore, the use of the market-share (or penetration) strategy is somewhat limited by the make-up of the firms in the industry and the competitive environment in which the participating firms compete.

c. Market Skimming

Built on a similar foundation to profit-maximization strategy, the concept of market-skimming assesses the condition of the industry with particular attention to the product's demand curve. In a market-skimming strategy, pricing decision-makers seek to exploit a high demand for their product by charging a high initial price or premium on the sale of each unit. This commonly occurs when customers are willing to pay a high price for the latest technology or perceived advances in quality. The strategy is sometimes viewed as "charging as much as the market will bear" and is frequently used to achieve an "almost instantaneous return on investment." [Ref. 17:p. 10] Figure 3.12 illustrates the conditions that promote a profit-skimming strategy.

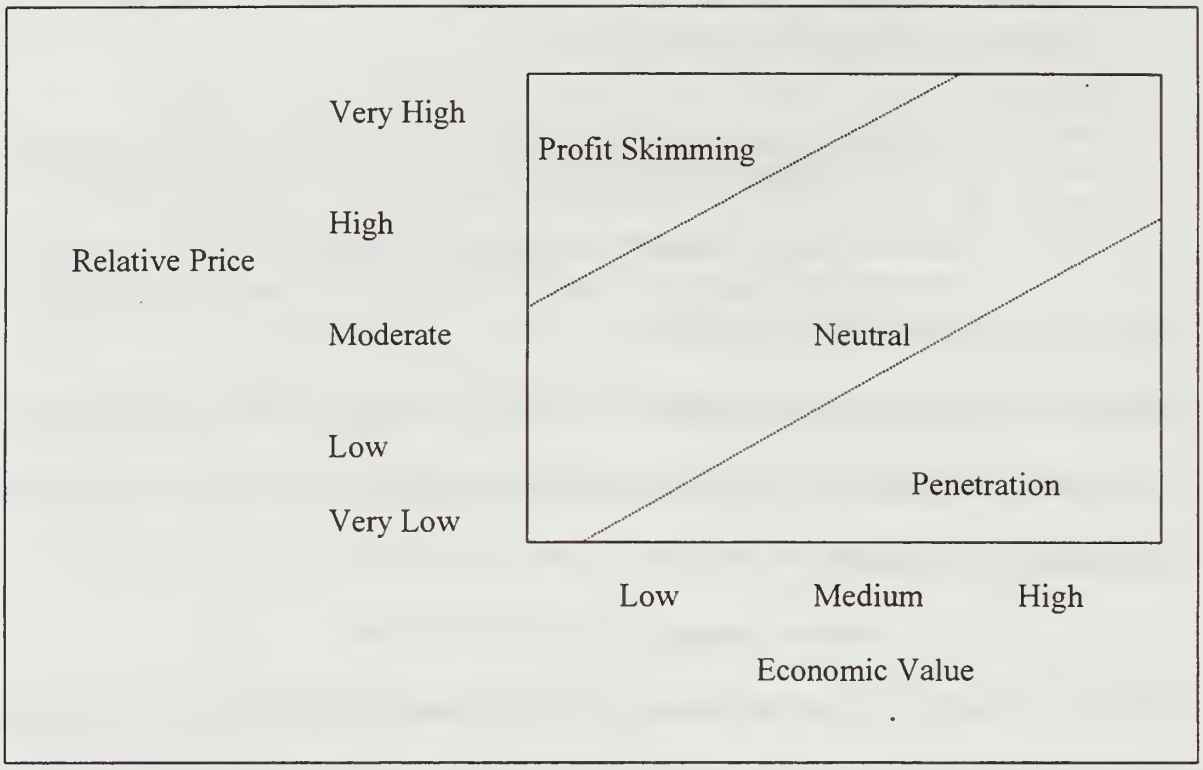


Figure 3.12. Relationship Between Price and Economic Value in Strategy Selection [Ref. 8:p. 153]

A market-skimming strategy frequently involves firms limiting production of the product but maintaining a high profitability due to the higher than usual profit generated from each sale. As Kotler and Armstrong point out,

> Market skimming makes senses only under certain conditions. First, the product's quality and image must support its higher price, and enough buyers must want the product at that price. Second, the costs of producing a smaller volume cannot be so high that they cancel the advantage of charging more. Finally, competitors must not be able to enter the market easily and undercut the higher price. [Ref. 5:p. 331]

Thus, profit-skimming pricing is generally applied in a "seller's market" where a firm has a unique opportunity to capitalize on being a sole-source provider of a good which is

demanded by a segment of the market that is willing to pay a high price for it. Further, the profit-skimming model generally features barriers for other firms to provide the same or similar good because entering the market is too costly or additional time is required to prepare start-up production. Despite the profitability of a profit-skimming strategy, in the long run the barriers for new firms to enter the market will erode and new firms providing the same or similar product will force the profit-skimming firm to reduce its price. The profit-skimming firm may, however, maintain its strategy for a long period if it can deliver additional advances in technology or quality allowing the firm to distinguish its product from the competition and maintain the support of a loyal customer base.

d. Current-Revenue Pricing

Closely related to the goal of the profit-skimming strategy, current-revenue pricing seeks to maximize immediate cash flow and, thereby, assure the firm's short-term viability. Under this strategy, a firm may have motivations beyond trying to generate profits for investors. Firms engaged in current-revenue pricing may try to maximize sales in an effort to maintain its workforce or achieve near term cash recovery of money invested in a product line. The current-revenue strategy achieves this goal by determining the optimum price/quantity combination for the current or short- term demand of the market.

Firms using this strategy are typically concerned about long-term market uncertainty. For example, firms using current-revenue pricing may be concerned about the sudden emergence of competition for a particular product, or rapid advances in technology that result in product obsolescence, or pessimistic expectations for the future of the market. These uncertainties motivate a seller to price his products with the

expectation of making money in the short-term because of doubts about opportunity to make money in the future. As cited in the Government's Contract Pricing Reference Guide, "To (current-revenue pricing firms) a sure dollar today is much more important than the possibility of more dollars tomorrow." [Ref. 20:p. I-19]

e. Target-Profit Pricing

Target-profit pricing is the practice of establishing a specific amount of profit a firm expects to receive from a product line over a given period of time, based on predetermined production and sales projections. This methodology is designed to enable pricing decision-makers the opportunity to compare manufacturing expense projects and sales projections to make a judgement about the desirability of the venture. Target-profit pricing is closely related to the rate of return strategy examined in the researcher's earlier discussion of cost-based pricing

Professor Robert F. Lanzillotti of the University of Florida has analyzed the pricing policies of twenty of the largest United States companies, including General Electric, General Motors, U.S. Steel and others. He has observed,

> When companies use target-return pricing, they do not try to maximize short-term profits. Instead they start with a rate of return they consider satisfactory, and then set a price that will allow them to earn that return when their plant utilization is at some "standard" rate. In others words, they determine standard costs at standard volume and add the margin necessary to return the target rate of profit over the long run. [Ref. 6:p. 11]

Additional research into corporate pricing practices made the following observations about target-profit pricing:

- That large corporations generally try to realize a target markup or target return on investment;

- That their prices tend to be inflexible, noncompetitive, and unrespon-sive to changes in demand;

- That contrary to a fundamental postulate of classic economic theory, large oligopolistic corporations do not maximize profits, but use their market power to achieve planned or target profit levels. [Ref. 6:p. 12]

Target-profit pricing, therefore, plays a significant role in a firm's pricing strategy; prices are established based upon projections of standard costs, at a prescribed level of production, over a long period of time.

f. Promotional Pricing

The promotional strategy is a short-term approach based on other than normal cost recovery or profit motives. "It involves pricing to recover variable costs and perhaps some fixed costs to the extent that a low enough price is offered to beat the competition." [Ref. 17:p. 10] The use of promotional pricing is common in practically all retail markets in which competition for price or non-price related factors are high. The following three forms of promotional pricing are most common:

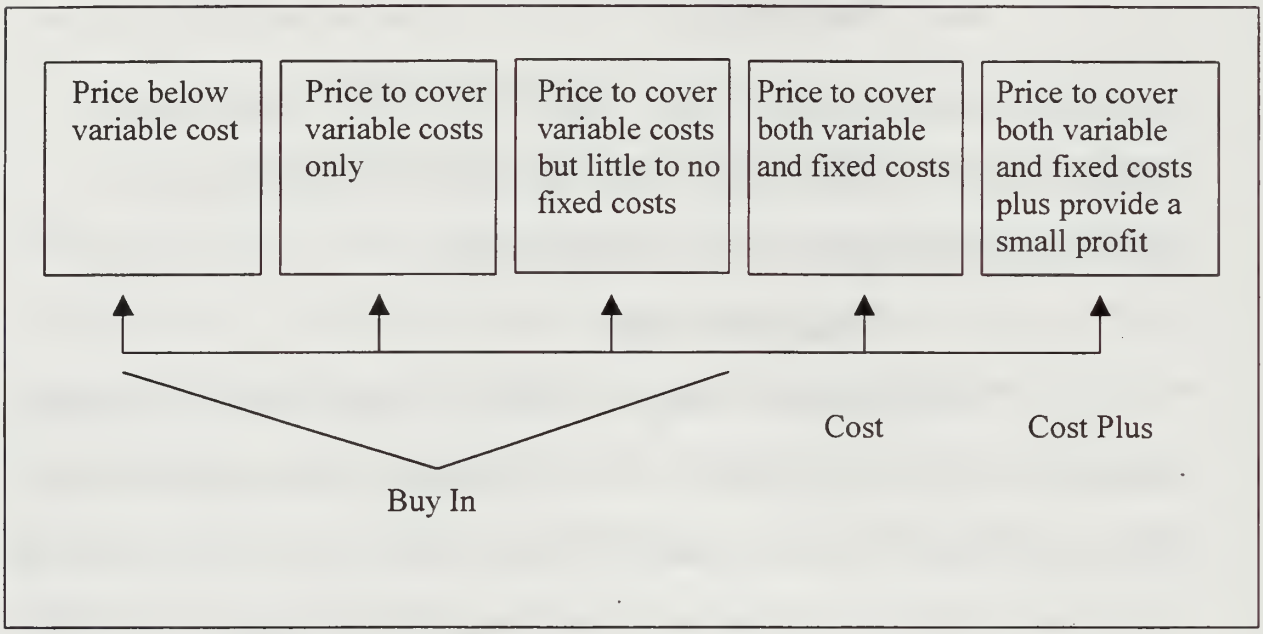
- "Loss-leader" pricing is probably the most common example. The price of one, or a group of items, is reduced to near cost, or even below. Customers are attracted to buy the low-priced items and buy other related items at the same time.

- "Prestige" pricing uses a high quality, high-priced item to enhance the image of the entire product line and attract more buyers.

- "Bait and switch" pricing is another version of the strategy. The buyer is lured to the seller by a low-priced item, and then switched to a "better" item during the sale. [Ref. 20:p. I-21]

Figure 3.13 depicts the spectrum to promotional pricing techniques available to pricing decision-makers. The choice of which promotional pricing technique to be apply depends on several factors, including: the firm's goals for introducing its product and

capturing market share; internal pressure to recover at least the product's variable costs, or the firm's goals of achieving a prescribed rate of return as in the cost-plus strategy.



Source: Developed by Researcher.

Figure 3.13. The Spectrum of Promotional Pricing Techniques

g. Demand Differential Pricing

The strategy of applying demand-differential pricing seeks to divide the total market into smaller market segments, with each segment reflecting a different demand for the product. The goal behind demand-differential pricing is to promote sales in specific segments by tailoring the price of the product to best match the demand in that specific market segment. [Ref. 5:p. 335] Under a demand-differential pricing model, firms demonstrate maximum flexibility in responding to the demands of the specific segment. For example, a firm could apply a profit-skimming strategy in one market segment where demand is high and competition is moderate while also providing the

same product, on a promotional basis at a below-cost price in an effort to stimulate sales. Several factors may influence these considerations, including demographics of the area, climate, and the relative affluence of the population. The challenge to pricing decision-makers is to effectively identify the market segments and determine which combination of pricing strategies best meets the firm's goals.

h. Market-Competition Pricing

In market-competition pricing, firms respond to the competitive forces in the market. [Ref. 20:p. I-23] Firms competing in market-competition carefully analyze the overall competitive environment and their competitor's pricing patterns. Once this analysis in completed, the firm seeks to price its product slightly below its competition but above its actual costs, in order to gain as sales advantage and realize a measure of profit. The success of the market-competition strategy depends on the firm's ability to keep its costs low and accurately predict its competitors' pricing practices.

E. SUMMARY

Understanding the relationship between elements of a pricing decision is fundamental to a firm's successful business strategy for the product line. Three elements (cost, customers, and competition) form the foundation on which pricing decisions are based. A firm's costs can be broken down apart into many categories. The distinction between costs requires careful analysis to understand the implications on pricing. Additionally, recognizing the make-up and behavior patterns of the customer is necessary. For example, pricing decisions targeted for task-oriented customers may be very different from pricing decisions focused on non-task oriented customers. Finally, and perhaps most importantly, successful pricing decision-makers must understand the

competitive nature of the environment in which their product is placed. The pricing strategy for a monopolist, for example, will be very different from the strategy used by a firm in a free market environment in which numerous providers are competing for business. Once an understanding of costs, customers, and competitive environment is achieved, the pricing decision process will focus on strategic objectives.

Developing and implementing strategic objectives is a necessary dimension of a firm's pricing decision process. It is during this stage that the firm's management attempts to establish goals that will satisfy the interests of the firm's stakeholders. These goals are then communicated to the organization at all levels and the goals provide direction to those personnel empowered to make pricing decisions.

Finally, pricing decision-makers have numerous pricing strategies available to assist them in achieving their goals for an individual product line, as well as the overall goals of the entire firm. These pricing strategies are commonly broken down into two separate groups, cost-based pricing strategies and market-based pricing strategies. The next chapter will more closely examine the application of these strategies, and provide a basis for the researcher's conclusions about the pricing strategies and recommendations. These conclusions and recommendations will provide a basis for how Government procurement personnel can more effectively understand and work with firm's using these strategies to achieve their firm's goals, while working with the guidance governing procurement of commercial items.

IV. ANALYSIS OF COST-BASED PRICING STRATEGIES

A. INTRODUCTION

The analysis presented in this chapter as well as in Chapter V is based upon data gathered through interviews and written correspondence from acquisition professionals in the commercial sector and various DoD activities. The DoD activities participating in the researcher's interviews include: the Defense Logistics Agency; Naval Inventory Control Point, Philadelphia; Naval Air Systems Command; U.S. Fleet and Industrial Supply Center, San Diego; and the Office of the Assistant Secretary of the Navy (Research, Development, and Acquisition). All but two interviewees from the Federal Government were GS-12 or higher. Similarly, interviews were conducted with representatives from firms in the commercial sector including: Litton Systems International, Inc.; Avondale Shipyards Division; the Aerospace Industries Association; Lockheed Martin, Inc.; and Price Waterhouse Coopers, Inc. Appendix B provides a listing of those individuals participating in the interview process.

All interviews were conducted on a non-attribution basis. Respondents were encouraged to speak candidly about their experience with and philosophy about the pricing decision-making process from the commercial perspective as well as those representatives from Government providing insight as to the methods used to determine the reasonableness of a firm's price. Additionally, the respondents frequently provided their thoughts about the impact of recent acquisition reform initiatives and the future direction of acquisition reform.

The interviews provided the researcher a foundation from which analysis was conducted regarding the application of the eleven pricing strategies presented in the previous chapter.

B. RELATIONSHIP BETWEEN PRODUCT AND COST

As discussed in Chapter III, a firm's decision to apply a cost-based strategy in determining its selling price is based primarily on the first elements of the Nagle and Holden Model (Figure 3.6), namely the relationship between the product and the costs to produce it. Thus, understanding the costs and the variability of the costs is fundamental to the cost-based pricing strategy.

Before beginning production, a firm makes many decisions that impact its pricing strategy. These decisions include the manner in which the firm covers its operating expenses and supports the acquisition of necessary equipment and research and development to support its expansion. These considerations establish the foundation upon which a cost-based pricing strategy is applied.

C. SUPPORTING STARTING COSTS

As discussed in Chapter III, firms beginning a new product line generally incur significant cost related to the start of production. These expenses require a firm's managers to make decisions concerning the manner in which these costs will be covered, the time required to recover the initial investment, the amount of risk involved in the venture, and the necessary return required to make the venture worthwhile to the firm. These decisions are made based upon a variety of factors including the firm's short-term and long-term profitability objectives, its goals with regard to its position in the industry, and its outlook for the future of the product and the industry in general.

Firms begin this analysis by estimating the costs involved in acquiring the necessary tools and equipment needed to start production. These estimates provide the basis for determining how the firm will finance the costs associated with the new venture. According to one respondent, firms generally try to defer the costs of new product line development to its customers. For example, the Federal Government frequently incurs the research and development (R & D) costs for technology used in its defense systems. When the Government provides the firm money to cover start-up costs, risks for the firm are reduced and the firm's pricing strategy will likely not seek to realize high profits in the early stages of the PLC.

However, when the Government does not provide financial support for R & D and other start-up costs, firms must decide alternative methods to finance the initial investment. One option available to the firm is borrow the necessary capital and incur the interest expense for the loan. The advantage to this action is that the firm can begin the product line before accumulating the necessary funds through other operations or without depleting the firm's cash reserves and jeopardizing its ability to support other initiatives within the firm. However, the decision to borrow money to begin a new product line is expensive as the interest expense is generally higher than the RoR threshold the firm would establish.

Another option available to the firm is simply to absorb the initial costs and take the funds from the firm's profits. This method has both advantages and disadvantages to the firm. A key disadvantage is that the firm reduces the profits it has earned for potential distribution to investors. Failure to provide investors returns for their investment, may discourage future investors whose funds are needed for the firm's long

term growth. Further, the decision to divert profits from one venture into the start-up costs of another may result in the firm having to borrow money to cover expenses unrelated to the new product line. Finally, when a firm elects to independently finance the start of a new venture assumes significant risk as the potential exists for the venture to be unsuccessful and the firm could lose the funds it provided to get the product line started.

D. RECOVERING INITIAL INVESTMENT

Each of the three methods discussed above for providing funds to cover initial start-up expenses has different implications for the firm as it makes pricing decisions. When the Government or other activity finances all or part of the initial investment for a new product line, the firm's pricing strategy should reflect the reduced risk and, therefore, should establish more modest profit goals for the Introduction and Growth stages of the PLC. In this situation, the firm will likely apply a Rate of Return strategy.

The decision to borrow on its line of credit to begin production significantly changes the formula as the firm must generate enough profit to cover its direct costs plus pay the loan and the interest on the loan. In this situation, a number of additional variables must be considered. First, the projected life of the PLC must be identified. This is an important consideration because the firm is not likely to want to extend the life of the loan beyond the PLC. Similarly, if the product line is designed to support only one contract, the rate at which the firm must recover its costs must be accelerated to provide for repayment of the loan during the life of the contract. Another consideration in determining the length of the loan is the rate of interest chargeable to the firm. A long-term debt usually carries a higher rate of interest than a short-term debt. Consequently,

the firm may have incentive to repay the debt as early as possible to save interest expense. These factors support an early recovery of the firm's investment. In order to achieve this goal in a cost-based strategy, the firm may elect to accelerate the depreciation of the equipment purchased for the product line. The decision to accelerate the depreciation of the equipment would increase the costs realized by the firm and, therefore, support a higher selling price.

When a firm independently supports a product line's start up costs, it will likely seek to recover its funds as quickly as possible in order to reduce the firm's risk. In this case, the firm may choose to establish a high RoR or accelerate the rate of depreciation on its equipment as a means of achieving higher revenues in the Introduction stage of the PLC.

The implication for the Government buyer is that an analysis must be conducted to consider the time at which the firm began the product line, the manner in which the firm's start-up costs were covered, and the product's position in the PLC. These factors provide insight as to the likely pricing strategy applied by the firm.

E. COST-BASED PRICING IN A STABLE ENVIRONMENT

Not all firms require significant start-up investment as previously discussed in this chapter. For these firms, the start-up investment is relatively small or has been previously recovered. An example of a firm using mark-up pricing would be a tool and dye firm in which the manufacturing techniques and equipment have been relatively unaffected by change in the industry and whose level of production is relatively predictable. In cases like these, firms apply a mark-up strategy to their pricing decisions due to its simplicity and the relative stability of their business environment. As explained

in Chapter III, a mark-up strategy establishes a selling price by identifying the total cost per item and adds a percentage (i.e., the mark-up) to include profit for the firm. The mark-up strategy is most effectively applied, according to one respondent, when a firm can accurately project the required volume of sales to satisfy the demand, the price the customer is willing to pay remains stable, and the costs related to the volume of sales are stable. When these conditions are met, the firm can reasonably project its production costs and establish a mark-up that will satisfy the firm's profit objectives. However, when firms cannot not rely on stability in the customer demand for their product or the prices associated with its production, mark-up pricing is not recommended. For example, one respondent indicated that electronics firms usually do not apply a mark-up strategy due to the high costs of starting a new product line and the potential volatility in sales following the product's introduction. In this example, failure to accurately project sales puts the firm at risk of miscalculating the proper mark-up to be applied to achieve an adequate return to satisfy the firm's objectives. The implication for the Government is that firms with experience operating in a stable environment are more likely to apply a mark-up strategy in pricing their products.

Similar to the concept of a mark-up, the pricing strategy of adding a margin on direct costs is a method that applies a percentage to the direct cost of producing a product. This percentage is intended to cover all indirect costs plus provide a profit. The application of a margin on direct cost strategy is useful to firms that have relatively stable sales volume and little indirect (overhead) expenses. An example of a firm likely to use this method of pricing is a firm that buys and assembles components. In a business such as this, the majority of the firm's expenses include direct material and direct labor.

Therefore, the amount of indirect cost included in the margin is small and the majority of the margin is profit.

F. COST-BASED PRICING TRADITION

Cost-based pricing in Federal contracts is a strategy that provides significant benefit to both industry and the Government. For industry, the strategy provides a simple and verifiable method of determining a minimum selling price. Additionally, its focus on costs enables industry to monitor and control variable costs. This consideration is particularly useful in today's environment in which many initiatives are explored to obtain greater efficiency with industry. Finally, the strategy allows the firm to determine the contribution margin for each unit sold. Thus, when provided accurate sales projections, firms can effectively estimate their revenues and make management decisions that best achieve the firm's objectives.

The Federal Government supports cost-based pricing for many of the same reasons as industry. Cost-based pricing applies a consistent and rational approach to pricing decisions. Its focus on costs encourages firms to seek greater efficiencies, thus, providing potential savings as firms seek ways to reduce costs as a means of enhancing their competitive edge. And the technique is verifiable which assures fairness and equity in the pricing process.

The Government's traditional reliance on cost and pricing data has served to build a culture within the Federal procurement workforce that favors cost-based pricing as a way of ensuring that the Government pays a fair and reasonable price for the goods it procures. This mind-set has been challenged by the implementation of acquisition reform that has restricted the Contracting Officer's opportunity to require a contractor to disclose

his costs and for the Government to enter negotiations with knowledge of the firm's cost breakdown and profit objectives. Instead, today, acquisition reform promotes the influence of competitive, market-forces to assure that the price charged to the Government is fair and reasonable. In adopting acquisition reform, the Government is challenging the cost-based, procurement culture to explore other pricing strategies as a means to strengthening the competitive environment and to provide higher quality products to the Government at lower prices.

G. COST-BASED PRICING DILEMMA

Despite the advantages of the cost-based pricing approach, the strategy has its flaws. First, it is difficult to accurately determine a product's unit cost in order to determine price. This is a result of changing unit costs as volume changes. [Ref. 8:p. 3] The result is, that under a cost-based strategy, firms are required to make assumptions about volume of sales which may have unintended consequences if are ultimately determined to be inaccurate. For example, if a firm faces increasing competition and decreasing growth it will likely change the allocation of its overhead base to reflect the adjusted sales projections. The shrinking overhead base caused by decreasing sales results in price increases which further contributes to decreasing sales. The dilemma also applies when a firm's sales projections are understated, although this scenario results in a expanding base and contributes to excess profits. Nagle and Holden summarize the dilemma by suggesting that the situation leads to "overpricing in weak markets and underpricing in strong ones – exactly the opposite of a prudent strategy." [Ref. 8:p. 4] Therefore, despite its apparent logical manner of connecting the product to its costs, the strategy may lead to unintended consequences if the firm's projections are inaccurate.

H. SUMMARY

Applying a methodology to pricing that most connects the product to the selling price is the goal of cost-based pricing. Although the practice includes as least three distinction strategies – Mark-up, Margin on Direct Cost, and Rate of Return pricing – each of the strategies provides a consistent, logical, and verifiable method to determining a selling price. However, the strategy relies upon the stability of production costs and consumers' willingness to pay a predetermined price for the product. Additionally, a cost-based strategy is only effective if the firm can accurately forecast sales. Thus, firms who can not ensure stability or accuracy in their projections are likely to maintain an awareness of cost-based factors but seek other techniques that provide greater flexibility to respond to changing conditions.

The Government's long standing emphasis on cost analysis has supported the use of cost-based strategies because they are consistent, equitable, and verifiable. But one of the consequences of acquisition reform is that the Government must seek alternative methods of ensuring that it pays a fair and reasonable price. As a result, buyers must be knowledge of an alternative pricing strategies available to firms. Chapter V provides an analysis of these strategies.

V. ANALYSIS OF MARKET-BASED PRICING STRATEGIES

A. INTRODUCTION

This chapter will build upon the discussion presented in Chapter IV, namely that firms generally make pricing decisions with an awareness of cost related factors. However, this chapter will demonstrate that a market-based dimension is also an important element in developing a pricing strategy. The researcher will analyze the eight market-based pricing strategies introduced in Chapter III and use this analysis as a basis for drawing conclusions and recommendations to be presented in Chapter VI.

B. FOCUS ON THE CUSTOMER

As the researcher discussed in Chapter II and illustrated in Figure 2.3, cost-based pricing focuses on the relationship between the product and its costs. Market-based pricing, in contrast, focuses on the customer's needs and creating the greatest value for the customer. The purpose, therefore, of market-based pricing is to price more profitably by capturing more value, not necessarily by making more sales. [Ref. 8:p. 7]. As Nagle and Holden write,

> When marketers confuse the first objective with the second, they fall into the trap of pricing at whatever buyers are willing to pay, rather than at what the product is really worth. Although that decision enables them to meet their sales objectives, it invariably undermines long-term profitability. [Ref. 8:p. 7]

The responses provided to the researcher indicate that firms generally focus their pricing decisions on market-based pricing factors, while maintaining an awareness of cost-based considerations.

C. PRICING STRATEGIES

Market-based pricing strategies can be generally separated into two groups, those strategies designed to make as much profit as possible in the short term and those strategies that seek to establish position in the market so as to support long term profitability. Figure 5.1 depicts this separation.

Market–based Pricing Strategies Focusing on Generating Profits In the Near Term	**Market-based Pricing Strategies Focusing on Establishing A Position in the Market For Long-Term Advantage**
Profit-maximization	Market-share
Market-skimming	Target-profit
Current-revenue	Promotional
	Demand-differential
	Market-competition

[Source: Developed by Researcher.

Figure 5.1. Classification of Market-based Pricing Strategies

D. FOUNDATION OF ANALYSIS

During the course of interviews with industry representatives, the researcher has concluded that there are two dimensions to a firm's pricing decisions, particularly with regard to market-based pricing. The first focuses on the internal characteristics or needs of the firm. The second dimension includes factors external to the firm. An understanding of the distinctions between these factors is instructive to developing insights into the formulation of a firm's pricing strategy.

1. Internal Factors: Profile of the Firm

Although every firm is different in one way or another, there are a number of considerations that may provide insight as to the influences contributing to a firm's pricing decision-making process. These factors include: the firm's size, relative position within the market, longevity in the industry, its utilization of capacity, and its overall financial status. The researcher shall briefly discuss each of these factors as well as how various market-based strategies best meet the firm's internal goals.

a. Firm's Size and Financial Resources

A firm's size is an important consideration in trying to understand its pricing strategy. At one end of the spectrum, a small business may produce a single product line with a very narrowly defined niche in the business. At the other end of the spectrum, a very large multi-national company may feature several divisions offering multiple product lines to a wide range of consumers. In between these extremes, there are medium and large firms with a presence in a regional market and large firms who conduct business on a nation-wide scale.

The firm's size is significant because of the potential degree of diversification in its products. A small firm with a very limited product line may be unable to support the continuation of a marginally profitable product and is likely to seek higher levels of profit in the early stages of the Product Life Cycle (PLC). This pricing strategy may be required as a means of recovering its initial investment and supporting expansion into additional products. Consequently, such a firm would likely apply a profit-skimming or current-revenue strategy as a means of achieving an almost instantaneous return on investment.

At the other end of the spectrum, a large firm with several product lines may have the ability to support a product which is slow to provide an adequate return on investment because other products in the firm's arsenal are profitable enough to meet the firm's overall short-term profit objectives. The large firm may choose to apply promotional pricing or market-share pricing in this example as a means of getting the product into the hands of the consumer and developing a demand for it. Once the product has established a following in the market, the firm will likely change its strategy to seek higher profits to make up for the low initial profits following the product's introduction and to support another product's promotional pricing strategy. In this case, the firm may move toward a profit-maximization strategy that tries to achieve the optimal combination between price and quantity to maximize the firm's revenue.

As a buyer, it is necessary to analyze the firm's size and make an assessment of its financial resources. This analysis, along with recognition of the product's stage in the PLC, should provide signals to the buyer concerning the possible goals and objectives trying to be obtained by the firm. A firm with limited financial resources may be required to price its products in such a way so as to enhance cash flow. Other firms with strong cash flow are more likely to maintain higher prices because of reduced pressure to raise cash to meet expenses. Buyers who recognize that a firm is applying a profit-skimming strategy should aggressively seek price reductions because of the size of the profit margin being assessed by the firm. Conversely, in a situation in which a firm applying promotional or market-share pricing, buyers should recognize that the firm is seeking to capture consumers' loyalty to their product and that it is unlikely to maintain this pricing strategy beyond the short-term.

A prudent buyer will analyze a firm's size and financial resources in determining the firm's goals and objectives. Is the firm striving to grow in size or has it deliberately chosen to remain smaller? The implication of a smaller firm that seeks to grow in size and financial strength is that it may price its products in a manner required to raise additional capital to finance expansion. Such a situation may encourage the use of a profit-skimming or current revenue strategy. Alternatively, a smaller firm that wants to remain small may be able to support its profit objectives with a more modest profit margin and establish a target-profit strategy.

b. Firm's Utilization

Respondents to the researcher's interviews indicated that utilization of the firm's capacity was a significant factor in their firms' pricing strategy. A firm with unused capacity is likely to be inefficiently applying overhead costs to its limited line of production. Therefore, a profit-maximizing firm may choose to price their products in a manner designed to increase demand or, alternatively, it may take steps to reduce overhead in order to achieve greater efficiency. If the firm chooses to change its pricing strategy, it will elect to reduce prices to capture increased market-share or seek to apply demand-differential pricing as a means to best tailor pricing around specific market segments. One respondent to the researcher's interviews indicated that unused capacity within a firm threatens other, more successful, product lines because of the negative impact of overhead distribution.

In contrast to a firm with unused capacity, some product lines may be operating at maximum capacity. The pricing implications for firms in this condition may be substantially different. Firms fully utilizing their capacity are likely to have inherently

lower total costs per unit as overhead costs are spread over the largest base unless inefficiency in production prevents the firm from obtaining this condition.

Buyers who recognize that a firm is under-utilizing its production capability should be aggressive about seeking information about the product's total cost. The implication of under utilization is that the seller's price may be higher than usual due to the need to support the overhead costs of the unused capacity.

c. Firm's Position In The Industry

None of the respondents interviewed by the researcher classified themselves as monopolistic firms within their industries. However, based upon the literature, the researcher speculates that a monopoly firm would tend to apply a profit-skimming or profit maximization strategy in an effort to capitalize upon its monopoly position within the industry. However, a monopolist must exercise caution in applying a profit-skimming strategy because other firms in the industry will have an incentive to enter competition and threaten the monopolist's sole-source status.

Government procurement frequently involves a sole-source provider. In these situations, the sole-source provider effectively serves as a monopolist. Until recently, the Government has been able to ensure a fair and reasonable price through the firm's disclosure of certified cost and pricing data. However, with acquisition reform, the Government's ability to require certified cost and pricing data has been restricted. In these cases, Contracting Officer's are required to seek alternative information to support a fair and reasonable price determination. In the event that such a determination can not be made, the Contracting Officer may seek to find or develop alternative sources. The

monopolist recognizes this condition and must price his product appropriately or risk losing his unique status as a sole-source provider.

Many respondents identified themselves as part of an oligopoly and emphasized the competitive forces that applied to their pricing strategies. Although none of the respondents interviewed revealed their specific strategies but instead spoke in generalities, the researcher concluded that firms generally apply a mixture of cost-based and market-based pricing strategies and that the mix varies depending on the product line. A firm generally sets profit expectations based, in part, on the stage of the product in the PLC. Consequently, a new product is expected to achieve a higher level of profit than a product that is in a mature or declining stage in the cycle. Consequently, firms are usually unable to specify a particular strategy and, instead, apply a combination of strategies.

The factors of an imperfect competition generally intensify the level of competition as more firms compete for business. The researcher suggests that in imperfect competition, firms will tend to more readily apply promotional pricing or market-competition pricing as a means of ensuring competitiveness with other firms. Similar to the situation discussed in an oligopoly, firms competing in imperfect competition are likely to apply different pricing strategies depending on the stage of the product in the PLC. One respondent who identified his firm as competing in an imperfect competition market indicated that his senior management may target specific elements of the market and prices the firm's products very low (even below cost) in an effort to discourage competitors from entering the market. For this firm and other firms applying the same strategy, the goal is to penetrate the market and establish a customer base. Once

this base is established, the firm increases the price of the product with the expectation that customers will pay the additional cost because of the product's proven performance.

Finally, firms acting in a perfectly competitive market have little opportunity to apply strategies to pricing decisions. Firms competing in these markets are commonly called "price takers", [Ref. 17:p. 11] meaning that the market will establish a selling price for their product and the firm is left to decide what level of production to provide to consumers. Although in a perfectly competitive market, an individual firm may have little opportunity to manipulate price, all firms acting together could potentially manage production and therefore impact price through a form of profit-maximization (i.e., changing the intersection point on the Supply and Demand curve).

Assessing a firm's standing within the overall industry may provide insight into its pricing strategy. A firm that is dominant in the industry will likely price its products with the intent of protecting their position. While firms that are positioned in the middle or near the bottom within the industry are likely to aggressively price their products in an effort to gain increased market-share.

Figure 5.2 lists the internal factors impacting a firm's pricing decisions along with those strategies that best fit the firm.

Firm's Factors	Predominate Strategies	Explanation
a. Size and Financial Resources	Target-profit	Likely to be used by larger firms with diversified product lines and substantial financial resources.
	Market-share or Current-revenue	Likely to be used by smaller firms seeking to support expansion costs or enhance short-term financial position
b. Firm's Utilization	Combination of cost-based and market-based (e.g., promotional or market share)	Likely to be used by firms operating below full utilization. The cost-based strategy is necessary to cover overhead costs while a market-based approach may be necessary to attract additional customers.
c. Position in Industry	Profit-maximization or Market-skimming	Likely to be used by firms with a dominate position within the industry.
	Market-share or Promotional	Likely to be used by firms seeking to gain standing within the industry.

Source: Developed by Researcher.

Figure 5.2. Summation of Internal Factors and Predominate Pricing Strategies

2. External Factors: Nature of the Industry

a. Stages within the Industry

Similar to Bingham's concept of a Product Life Cycle, industries may have similar life cycles in which periods of growth ultimately level off and later decline. This pattern has implications for a firm's pricing strategy. At one end of the spectrum, a firm competing in the early Introduction and Growth stages of the industry may elect to exercise restraint in pricing its products with the expectation that a long term strategy will best serve the firm's interests and achieve higher profits. In such a situation, a target-profit strategy may be the best option. A target-profit strategy allows the firm to establish

a specific amount of profit the firm anticipates to receive from a product over a given period of time. As cited in Chapter III in discussing target-profit pricing, Lanzillotti writes,

> When companies use target-return pricing, they do not try to maximize short-term profits. Instead they start with a rate of return they consider satisfactory, and they set a price that will allow them to earn that return when their plant utilization is at some "standard" rate. In other words, they determine standard costs at standard volume and add the margin necessary to return the target rate of profit over the long run. [Ref. 6:p. 11]

Thus, firms competing in the early stages of the industry are not likely to seek extraordinary levels of profit unless the life expectancy of the industry is short or the firm has a monopoly on a product.

In contrast to firms competing in the early stages of the PLC, a firm competing in the Mature or Decline stages of the PLC are likely to try to maximize profits while the opportunity is still available. One respondent illustrated this idea by stating "There is little incentive to price for increased market share when the market is fading away". Consequently, firms competing in a declining market are likely to apply current-revenue pricing or some combination of strategies designed to achieve the maximum profits in the short term.

The implications for a buyer are that higher prices can be expected for products that have reached or nearly reached the end of their PLC. Government respondents supported this conclusion in discussing their efforts to buy repair parts for aging aircraft. The buyers indicated that firms discontinue certain product lines as the older version is replaced by a newer product. In these cases, the original product has generally reached the Decline stage of the PLC and the buyer has had to pay substantially

higher prices due to reduced competition resulting from firms deciding to discontinue the product line. The remaining few firms who can provide the product are likely to exploit their position within the market and apply a market-skimming strategy.

b. Technology

Another factor that influences pricing decisions is the effect of technology within the industry. For example, an industry that is characterized with rapid advances in technology is likely to have different pricing objectives from one that is participating in an industry in which change is slow. In a rapidly changing industry, firms committed to staying in the business must continually finance research and development (R&D) and plant modernization as a means of keeping pace with the competition. Additionally, such an industry is likely characterized as one in which inventory obsolescence negatively impacts profitability. In such an industry, firms are likely to apply a profit skimming or current revenue pricing strategy as a means of rapidly raising profits to support R&D and plant modernization as well as reducing the risks of losing money on obsolete inventory.

The implication for the buyer is that recognizing the impact of technology is necessary to determining the pricing strategy applied by firms. As demonstrated by the procurement of automated data processing equipment, in an industry characterized by rapid change in technology, buyers are likely to pay a premium for state-of-the-art goods. In contrast, rapidly changing technology contributes to product obsolescence which may provide opportunities to buy an "obsolete" product at a reduced price and still satisfy the customer's requirement.

c. Resources

Some industries are significantly impacted by the availability of resources needed to produce their product. These resources may include raw material required to produce the product and human resources required to design and manufacture it. Under these conditions, firms are likely to price their products to reflect the volatility in the price of the inputs used to produce the product. Consequently, the pricing strategy will likely feature both cost-based and market-based principles. The cost-based dimension to the strategy is designed to reduce risk by responding to changes in the price of materials and/or labor. Margin on direct cost or mark-up pricing may by used in this situation to respond to the dynamics of the industry while the market-based strategy is tailored to reflect the level of competition. Consequently, in a scenario in which the cost of inputs fluctuates dramatically, firms are likely to seek a pricing strategy that provides protection against the risks imposed by fluctuating cost to produce the product.

Buyers must remain aware of the impact of changes in the cost of materials required to produce the finished good as these costs will likely be passed on to the customer.

d. Competition

The threat of new competition is another factor influencing a firm's pricing strategy. For a monopolist, the threat of new competition motivates restraint in establishing a selling price. If the monopolist establishes a price too high and receives excessive profits, additional firms are likely to seek entry into the market unless the barriers to entry are too great to enable additional firms to begin producing the same or similar product. Similarly, oligopolists seek to restrict new firms from entering the

market and threatening the balance of power among the few firms comprising the oligopoly. Thus, the threat of new competition is a restraining factor for most firms.

Government procurement professionals are taught to seek ways to maximize competition as a means of achieving the greatest value at the lower cost. As illustrated by the dramatic growth of competition within the computer industry, the impact of market forces serves to reduce suppliers' margins as a means of capturing market-share. In an environment marked by growing competition, firms are likely to apply promotional or market-share pricing as a means of gaining additional sales and expanding profitability through volume.

e. Government Regulation

Government regulation also plays a role in a firm's pricing decisions. One respondent indicated that the influence of regulation, as in the form of occupational health and safety guidelines and environmental protection legislation, impacted the firm's pricing strategy by increasing the cost of doing business and presenting risk in terms of the firm's vulnerability to legal liability. Similar to the situation in which the cost of resources fluctuates, the influence of Government regulation provides incentives for firms to seek strategies, such as current-revenue pricing, that promote a firm's profit making focus in the short term. Further, the condition also provides an incentive to incorporate a cost-based dimension in pricing to reflect the anticipated increases in the firm's cost of doing business.

Government buyers, like all buyers in general, ultimately pay higher prices for products impacted by Government regulation because the seller will seek to pass these costs on to consumers.

Figure 5.3 lists the internal factors impacting a firm's pricing decisions along with those strategies that best fit the firm.

Firm's Factors	Predominate Strategies	Explanation
a. Industry Stage	Target Profit	Likely to be applied by firms competing in the Introduction or Growth Stages of the PLC as short-term profits are reduced with the expectation of making long-term gains.
	Market-skimming or Profit-maximization	Likely to be applied to products in the Decline stage of the PLC as fewer firms continue production and the impact of competitive forces is diminished.
b. Impact of Technology	Profit-maximization or Current-revenue	Likely to be used as firms attempt to minimize the risks of rapid changes in technology and the resulting obsolescence of products.
	Promotional	Likely to be used by firms seeking to sell inventory of obsolete products that were not sold before the latest advance in technology
c. Resources	Cost-based strategy	Likely to be used as firms seek to adjust prices to reflect fluctuations in the cost of producing their products.
d. Competition	Market-competition or Promotional	Likely to be used as firms seek to gain a competitive edge in the marketplace.
e. Government Regulation	Cost-based strategy	Likely to be used as firms seek to adjust prices to reflect fluctuations in the cost of producing their products.

Source: Developed by Researcher.

Figure 5.3. External Factors and Predominate Pricing Strategies

3. Economic Climate

The condition of the general economic climate plays a major role in a firm's pricing strategies, particularly as the market becomes increasingly global. A prosperous economy provides firms an opportunity to broaden their markets and seek increased demand for their products. In such a scenario, a firm may apply a demand-differential pricing strategy designed to offer its products at a reduced price to certain market segments. Applying concepts similar to promotional pricing, demand-differential pricing seeks to introduce and establish a demand for a product within a market and, once the demand is established, achieve profitability by raising the price of the product.

A depressed economy, in contrast, is likely to provide only limited opportunities to expand into new markets because of the difficulty and expense of raising capital to support expansion. Further, the researcher speculates, firms operating in a depressed economy are likely to avoid the risks of entering an unknown market. Firms competing in a depressed economy are likely to apply market-competition pricing as a means of gaining market-share in a market that is well-defined and familiar to the firm.

C. SHIFTING STRATEGIES

In formulating its pricing strategy, firms work with an imperfect knowledge of the future. As a result, they may choose to make changes in responses to changing circumstances in the industry or changes in the direction and goals of the firm. As discussed previously in this chapter, the economic environment plays a significant role in a firm's strategy. In recent years, the Government has curbed the growth in defense spending which was characteristic of the early and mid 1980's. As a consequence of this policy shift, many firms previously concentrating on defense contracts have shifted some

of their resources to opportunities in the commercial sector while remaining active competitors for Government contracts. This shift in focus has served to diversify firms that were once almost exclusively focused on defense contracts. The American aerospace industry is an example of an industry that has aggressively sought new opportunities outside of DoD acquisitions and, as a result, changed some of their pricing strategies to competitively position itself among other firms providing goods within the industry. In addition to its movement toward diversification, many firms within the industry have merged in an effort to reduce duplication and achieve greater efficiency in their operations. The process of joining firms together impacts pricing strategies as the resulting, larger firm now competes in an industry with fewer competitors and significant pressure to compete and win the limited number of DoD procurements.

D. SUMMARY

There is a myriad of factors contributing to a firm's decision to apply market-based strategies in determining the price of their products. However, these factors are generally divided into two categories. The first category includes factors that are internal to the firm. These factors include such considerations as the firm's size, position within the industry, capacity, and financial condition. The second category includes those factors involving the industry's environment outside of the firm such as the impact of technological advances, the growth or decline of the industry, and the threat of new competitors entering the market. Additionally, the firm may be impacted by the larger condition of the national or global economies.

Successful firms employ a wide arsenal of pricing strategies in determining the pricing practices which best respond to the conditions of the firm and the industry. These

factors may include cost-based strategies, market-based strategies, or a combination of both types of strategies. As firms select their pricing strategies they must remain conscious of the impact their decisions will have on the firm's ability to maximize its objectives in the larger perspective of the overall industry. A monopolist, for example, may provide incentive to another firm to enter the market if the monopolist applies a pricing strategy that provides exorbitant profits. Buyers procuring products from these firms must recognize the factors driving these strategies and apply an understanding of the conditions contributing to the firm's pricing strategy. Armed with an understanding of these strategies, a prudent buyer will be more capable of negotiating a fair and reasonable purchase price.

VI. CONCLUSIONS, RECOMMENDATIONS, AND AREAS FOR ADDITIONAL RESEARCH

A. INTRODUCTION

As Dr. Gansler, Under Secretary of Defense for Acquisition and Technology has stated and other Department of Defense acquisition professionals have reaffirmed, "We (the Department of Defense) must aggressively pursue and fully implement the acquisition reform initiatives of the past few years; and add to these where appropriate." [Ref. 22] One of the cornerstones to acquisition reform is "an increase in the use of commercial practices and distribution systems to satisfy material requirements". [Ref. 22] One of the many steps taken to realize this goal has been to promote the use of commercial items within the Department and to more closely align DoD's procurement practices to those of the commercial sector. A fundamental step toward adopting commercial practices into the procurement process has been to relax the requirements on contractors to disclose their cost and pricing information to the Government in advance of negotiations. This policy shift has represented significant change within the Federal procurement workforce and raised concerns over the effectiveness with which a Contracting Officer can assure that a fair and reasonable price is paid for items bought for the Government.

In order to answer the primary question of this thesis, "What are the principal techniques used by firms in pricing products for the Government and how might an understanding of these techniques be most effectively used in evaluating and determining a fair and reasonable price?" a literature review and several interviews with procurement professionals were conducted. The respondents to the researcher's interviews

represented procurement professionals from both the Government and commercial sector. Throughout the course of the literature review and interviews the researcher gathered data concerning the different types of theoretical pricing strategies as well as testimony from the respondents concerning the factors applied by industry's pricing decision-makers in formulating pricing decisions.

The purpose of this chapter is to outline the data obtained through the researcher's literature review and interviews. The data provided by the literature review provided a foundation upon which the researcher conducted interviews with Government and industry representatives. Many of the responses received from respondents were consistent with the information obtained through the literature review. However, the researcher found that the literature review did not provide complete insight into the actual pricing practices in industry. The following conclusions and recommendations are presented for the completion of this thesis.

B. CONCLUSIONS

1. Acquisition reform legislation is achieving its objective of more closely aligning Federal procurement with commercial sector practices.

Based upon information provided by Government procurement personnel and representatives of industry, the researcher has concluded that acquisition reform has significantly changed Federal procurement practices to more closely resemble the practices of the commercial sector. While retaining their responsibility to effectively steward public funds, today's DoD procurement workforce is seeking to achieve the highest possible value of the Department through the intensified use of competitive forces. In particular, the expanded definition of commercial items has promoted a

streamlined and cost effective approach to procurement by reducing cost and pricing data disclosure requirements on offerors and, instead, applying market competition to ensure a fair and reasonable price. In so doing, the Federal Government is adopting the same practices used by industry in procuring goods for use in their commercial production of goods to be sold to the Government.

2. The Government's restricted use of certified cost and pricing data requires the Federal acquisition workforce to consider alternative ways of determining a fair and reasonable price is paid for goods procured by the Government.

Not surprisingly, the Federal procurement workforce is very proficient at analyzing costs and making a fair and reasonableness price determination based upon cost and pricing information disclosed by a firm seeking a Government contract. A significant portion of the contracts awarded by the Government included analysis of costs as a basis for negotiation preparations and the final determination of a fair and reasonable price. Acquisition reform, however, sought to reduce the burden on contractors to prepare such data and significantly limited the Government Contracting Officer's ability to require the offeror to disclose and certify his costs. Consequently, the Contracting Officer must seek alternative sources of information for analyzing an offeror's proposed price and preparing for negotiations. These alternative sources are numerous and include such things as recognizing potential pricing strategies and their intended objectives, disclosure of the firm's financial condition as reflected in its annual reports, information from trade associations and other professional organizations, and analysis of the price of similar items in the marketplace.

3. The DoD acquisition workforce is experiencing difficulty in transitioning to the use of other than certified cost and pricing data in determining a fair and reasonable price.

Implementing change within an organization is usually difficult. It is especially difficult in an organization as large as the Department of Defense and when the change involves long-standing practices that have so clearly defined and established a culture within the organization. The Government's requirement for contractor's to disclose cost and pricing information to the Contracting Officer and for this information to be used for the basis of negotiations has been the convention and the Government has built a bureaucracy designed to support this practice. Such a firmly established practice is difficult to change, as members of the organization resist changes which deviate from the manner in which they have been trained and their record of success is proven.

Acquisition reform has been about challenging all participants in the procurement process. Industry, for example, has been challenged to aggressively innovate and apply efficiency and quality enhancing initiatives into their production processes. Similarly, acquisition reform has challenged the Government to streamline its procurement practices and reduce its reliance on sovereign authority to override the forces of the competitive market in determining a fair and reasonable price. Thus, acquisition reform is working to change the culture of both industry and the Government.

4. Commercial firms do not consistently apply the same pricing strategy to all goods in a product line and the strategy used often combines two or more theoretical techniques.

Gathering information, conducting the necessary analysis of the information, and recognizing the goals and strategies applied by offerors is not easy. As the researcher has discussed, there are two general types of pricing strategies – a cost-based approach and a

market-based approach. Further, from the general strategies eleven other specific strategies originate and several combinations and variations from the eleven is possible. Consequently, it is generally difficult, if not impossible, to gain insight into the goals and intentions the firm is seeking to obtain in quoting its price. This difficulty is particularly daunting if the individuals seeking to analyze a firm's strategy are uneducated or unfamiliar with the culture of the commercial sector. Unfortunately, few Government procurement professionals begin their careers working within private corporations marketing division. Thus, the experience of the Government workforce is limited in this important area.

5. Continued training is required to educate the Federal acquisition workforce to better understand commercial pricing practices and to more effectively negotiate without the use of certified cost and pricing data.

As discussed in the previous conclusion, Government procurement personnel generally lack the knowledge or experience to recognize a firm's pricing strategy. As a result, Contracting Officers have frequently relied on the contractor's disclosure of cost and pricing data as a basis for making judgments about fair and reasonable price. However, with recent changes restricting the availability of such data to the Government, Federal procurement professionals must be trained to become skilled and informed buyers in a commercial setting where companies are required to routinely make decisions without the benefit of insight into how the offeror estimated his price.

In the commercial sector, procurement professionals are required to analyze the merits of the complete business deal, which means that cost is only one element. Commercial buyers must understand what the cost of a product represents in the larger view of the firm, its objectives, and the value represented by the procurement. Although

Government buyers will always retain the obligation to ensure the proper use of public funds, greater training must be focused on how to interpret an offorer's price and understand the factors that applied in generating the price. Armed with this understanding, the Government buyers' has a greater ability to into negotiations with a clearer idea of the perspective and goals the contractor brings to the table.

C. RECOMMENDATIONS

The following recommendations are designed to advance the Government's initiatives to more closely align Federal procurement practices to those of the commercial sector.

1. Continue initiatives within the Federal Acquisition Workforce to train procurement professionals concerning factors effecting a contractor's pricing decisions.

The DoD has a long-standing commitment to training its procurement professionals and continues professional training as represented by the Defense Acquisition Workforce Improvement Act which established training requirements for professionals working within the field of defense procurement. Moreover, the Department has established training opportunities through a variety of acquisition related courses provided by a variety of Government sponsored agencies like the Defense Acquisition University, Naval Postgraduate School, and others. Additionally, DoD has promoted opportunities for its personnel to seek additional training through programs offered at a number of colleges and universities. These courses are fundamental to ensuring that the Government's procurement professionals have the necessary skills to perform their responsibilities in an informed and professional manner.

In the aftermath of the DoD Inspector General Report outlining irregularities in the procurement of goods by the Defense Logistics Agency, the Under Secretary of Defense for Acquisition and Technology as well as other DoD leadership, has aggressively promoted training in the area of commercial practices. This training has included the publication of additional guidance to contracting personnel in the area of commercial pricing, distribution of training videos discussing current issues in commercial pricing practices, increased public discussion of DoD initiatives in the area of commercial practices by DoD leaders at all levels, and increased emphasis on the topic of commercial practices in Government sponsored, acquisition related, training commands. These measures are fundamental to building an environment in which the Department's procurement professionals can ask questions and offer new approaches to the challenges facing the Federal acquisition community.

Beyond the training initiative currently in progress, the Department must seek opportunities to gain experience and perspective of industry in the area of formulating pricing decisions. While openly discussing and sharing information between Government personnel and contractors about pricing strategies may be inherently difficult, a number of professional organizations like the National Contract Management Association (NCMA) and other professional associations provide Government procurement professionals an opportunity to interface with industry representatives. NCMA and other similar organizations host activities which provide informal settings where current initiatives can be discussed and ideas exchanged between procurement professionals from Government and the commercial sector. The DoD should aggressively promote participation in these associations by its procurement personnel as a

means of gaining needed exposure into the complexities of the decisions faced by industry in establishing prices for their goods.

2. Develop a method for documenting savings realized by DoD from changes brought about by acquisition reform initiatives like the expanded definition of commercial items and the guidelines governing their procurement.

Acquisition reform had many goals. As communicated by Dr. Gansler and other DoD leadership, the initiative was designed to,

> ...reduce cycle time; meet faster support response time requirements for parts delivery; deal with unanticipated surge requirements; and, overall, perform at much higher levels. All of this reduces costs. And – in a fixed defense budget environment – every dollar saved is a dollar we can shift to the modernization account. [Ref. 23]

Thus, acquisition reform attempts to achieve higher levels of quality and reduced costs. However, the researcher's research had difficulty finding information that documented the level of savings realized by reform initiatives. The researcher found sources that persuasively discussed the theoretical savings to be realized by more closing aligning with commercial practices, but there seemed to be a lack of concrete data documenting the savings. However, reviews such as the one completed by the DoD Inspector General concerning irregularities in procurement practices at DLA, clearly document losses by the Government due to flawed procurement practices originating from changes brought about acquisition reform.

DoD's failure to accurately document savings brought about by acquisition reform is understandably difficult. However, such evidence seems essential to counter the inevitable challenges to acquisition reform that result from disclosures such as the irregularity at DLA.

The success of acquisition reform depends on proponents' ability to document the benefits of the program and to convince legislative decision-makers of the additional benefits to be gained through additional reforms. The DoD's failure to effectively document savings jeopardizes future reforms as opponents seek to persuade decision-makers by highlighting individual, problem cases and representing them as indicative of the effects of acquisition reform in general.

3. Resist initiatives designed to reverse advances achieved through acquisition reform.

In response to the DoD Inspector General's findings of irregularities in procurement practices at DLA, a number of initiatives have been discussed that would seek to prevent further mishandling of procurement of commercial items. One such initiative seeking to require the submission of "uncertified cost and pricing data" as a condition for award of a Government contract when a fair and reasonable price can not otherwise be obtained. While the goal of this initiative is laudable, legislative approval of this initiative would set a precedent that could lead to other efforts to reverse the provisions of acquisition reform legislation.

DoD should resist initiatives that would reinstate disclosure requirements on contractors as a means of preparing for negotiations and determining a fair and reasonable price. Reinstatement of requirements such as these would pose barriers to attracting new firms with innovative approaches from seeking a Government contract. As Dr. Gansler pointed out in a recent press conference,

> We're actually trying to introduce more commercial firms at the same time (as the Department is downsizing). We want to take advantage of world class commercial firms out there that can supply to us, broaden our industrial base, get cheaper stuff, get better stuff, and more reliable equipment. [Ref. 22]

He went on to explain, "...Hewlett Packard, for example, who hasn't been doing R&D business with the Department of Defense because of our cost accounting systems. They don't want to set up a special account system." [Ref. 22] DoD's inability to attract Hewlett Packard and other firms like it into providing goods and services to the Government due to the Government's restrictive guidelines inhibits our ability to procure the best possible goods and services which degrades overall mission effectiveness.

D. SUMMARY OF RESEARCH QUESTIONS

In order to accomplish the objectives of this study, the following research questions were developed and investigated:

1. Secondary Research Question #1

What are the principal pricing techniques used by industry?

The principal techniques used by firms pricing products for sale to the Government can be divided into two categories. First, firm's apply a cost-based approach as a method of assuring recovery of costs plus an adequate profit. The cost based techniques include: Mark-up, Margin on Direct Cost, and Rate of Return. Second, firms may apply a market-based approach which reflects the competition forces of the market in determining a selling price. Examples of market-based techniques include: Profit-maximization, Market-share, Market-skimming, Current-revenue, Target-profit, Promotional, Demand-differential, and Market-competition Pricing.

2. Secondary Research Question #2

What is the difference between a Cost-Based and a Market-based pricing strategy?

The primary difference between a cost-based and a market based pricing system is the orientation toward which the supplier is striving to achieve his objectives. A cost-based strategy originates with an analysis of the product. The firm seeks to identify a product that will meet a need within the market. Once the need is identified, the firm seeks to identify the costs to produce the product at a projected level of production and with an estimated amount of capital necessary to begin production. Once the firm's costs are analyzed, the firm identifies a selling price that provides an adequate return on initial investment. The selling price is then used as a basis for establishing value to the customer. In contrast, a market-based strategy originates with an analysis of the customer and environmental conditions surrounding the customer. After this analysis is completed, the firm seeks to identify a selling price it believes would best fit the anticipated value the customer would have for the product. Once the proposed selling price has been identified, the proposed product is analyzed to determine the costs involved in its production. If the projected level of profit for producing the item satisfies the firm's management objectives or if the product has long-term benefits to the firm, production of the product will begin and the firm must choose a basis for establishing the product's actual selling price.

3. Secondary Research Question #3

What are the circumstances that distinguish the use of one pricing technique over another?

There are numerous factors contributing to a firm's decision to apply one pricing technique over another. But simply stated, the distinction is generally divided into two categories. First, internal factors of the firm play a significant role in the pricing decisions made by a firm. Included in these factors are such things as the size and financial resources of the firm, the firm's capacity utilization, and the firm's position within the industry. Second, external factors impact pricing decisions by establishing boundaries within which the firm must operate. These factors include such things as: the industry stage, the influences and dynamics of technology within the industry, the resources available to the firm, the level of competition within the industry, and the influence of Government regulation. Each of these factors has unique implications for the firm's pricing decision.

4. Secondary Research Question #4

What are the non-cost related factors that impact a firm's pricing strategy?

There are a number of non-cost related factors that impact a firm's pricing strategy, but the two most significant non-cost related factors include the customer and the competitive environment in which the firm exists. As pricing decision-makers consider the price to charge for a product, they must begin by analyzing the customer and the elasticity of the customer's demand for the product. A firm providing a product with an inelastic demand is likely to raise prices in order to capitalize on the demand for its product. Conversely, a firm that is providing a product that has a highly elastic demand will likely seek a lower price and attempt to capture a higher market share. Finally, as discussed in Chapter III, pricing decision-makers should recognize which of the three customer classification, organizational models (i.e., task-oriented, non-task oriented, or

decision process) best represents their potential customer base. Firms selling products to the Government likely classify its buyers as task-oriented, meaning that pricing decisions should be focused on attaining the required goods at the minimum price. This classification is likely to change if the Government is applying a best value approach to the procurement which would tend to support the characteristics represented in a non-task oriented model.

The competitive environment in which the firm exists is likely to be the most significant non-cost related factor affecting a seller's price. As discussed in Chapter III, the competitive environment can generally be classified into one of four categories: perfect competition, imperfect competition, oligopoly, or monopoly. In a perfectly competitive environment, sellers are "price takers" meaning no individual firm can influence price. Instead, all firms participating in a perfectly competitive environment must allow the forces of supply and demand to control their selling price. This condition is best represented by the commodities market in which a producer can not distinguish his product from another producer in the same market and consumers are indifferent as to the source of the supply. An imperfect competition features several firms competing within the same industry. In this competitive environment, producers seek to distinguish their products based upon price and/or quality. An imperfect competitive environment is likely to promote innovation and efficiency as a means of capturing increasing market share for the firm. An oligopoly is a competitive environment featuring only a few firms in the industry. Similar to the factors impacting an imperfect competitive market, oligopolists seek to dominate the market by gaining increased market share. Oligopolists may employ a variety of pricing techniques in trying to beat their competitors and capture

market share. Finally, a monopoly is a situation in which only one firm exists in the market and has the ability to dictate the price to be charged for its product. A monopolist will likely seek to maximize profits by determining a selling price at which its marginal cost equals its marginal gain, thus representing the most efficient level of supply and demand for the firm to maximize its profits.

The considerations of the customer orientation and the competitive environment are fundamental, non-cost related factors to be applied by pricing decision-makers in determining the selling price of their products.

5. Secondary Research Question #5

What skills or techniques are required of Department of Defense (DoD) procurement professionals to recognize which of the pricing techniques is being used by a firm?

DoD procurement professionals should be trained in the principles of Micro Economics to gain an understanding of the myriad of factors influencing a firm's pricing decisions. Additionally, a prudent buyer must be an expert in the area in which the product is being procured. This expertise should include an understanding of the overall market of the product, to include the number of firms participating in the competition, the overall status of the product in the Product Life Cycle, the influences of technology on the industry, the financial status of the firm, identification of the firm's current and intended position within the industry, the general economic health of the industry, and the influence that factors outside the industry have on the pricing decision. This understanding can only be acquired through communications with industry representatives and an analysis of data to be acquired from the firm, various trade

associations, financial institutions, and other organizations involved in monitoring or supporting the industry.

6. Secondary Research Question #6

How does the recognition of the pricing technique used by a firm affect the Government's preparations for negotiations?

A successful negotiation requires thorough preparation to acquire a necessary understanding of the factors influencing a firm's pricing decisions. A negotiator who is capable of gathering information, conducting an analysis, and making determinations about the likely pricing strategy used by the firm will be able to understand the implications of the strategy. This understanding will enhance the negotiator's ability to negotiate in manner that works to satisfy the firm's objectives while ensuring that the Government's interests of obtaining a fair and reasonable price are realized.

7. The Primary Research Question

What are the principal techniques used by firms in pricing products for the Government and how might an understanding of these techniques be most effectively used in evaluating and determining a fair and reasonable price?

Firms seeking to sell their products to the Government may employ a variety of pricing strategies depending on goals and objectives of the firm and market conditions in the industry. Typically, pricing strategies are broken down into two separate categories: cost-based strategies and market-based strategies. These general categories can be further divided into several specific pricing strategies. The decision concerning which of the strategies, or which combination of strategies, is dependent upon several variables including the costs involved in the production of the product, the make-up of the

customers expected to buy the product, and the competitive environment in which the firm must compete to sell its products. Additionally, pricing decisions are controlled by the firm's goals for profitability, future growth, and its position within the industry. Each of these factors in the formulation of the pricing strategy have implications for the buyer. A prudent buyer seeks to gather as much information as possible prior to entering negotiations with the firm. This information should include an understanding of the value the product has to the end user and the likely direct costs to produce the product. Further, a prudent buyer will analyze the overall market of the product, to include the number of firms participating in competition, the overall status of the product in the Product Life Cycle, the influences of technology on the industry, the financial status of the firm, identification of the firm's current and intended position within the industry, the general economic health of the industry, and the influence that factors outside the industry have on the pricing decision.

Once negotiations have concluded, the Contracting Officer must ultimately determine that the price paid by the Government is fair and reasonable and that the public's interests are protected. Completing this determination requires that the Contracting Officer acquire expertise about the product. This expertise can only be acquired through thorough information gathering and analysis. Recognizing the firm's likely pricing strategies is fundamental to this process.

E. AREAS FOR ADDITIONAL RESEARCH

The following are recommended topics for further research:

1. Develop a case study of a product sold to the Government that tracks the changes in the pricing strategy throughout the entire Product Life Cycle.

2. Research the method in which firms establish adequate RoR thresholds for the different stages in the Product Life Cycle.

3. Analyze how the expanding globalization impacts a firm's pricing strategy.

APPENDIX A. ILLUSTRATION OF THE METHODOLOGY OF COMPUTING A SELLING PRICE USING A MARK-UP PRICING STRATEGY

In order to illustrate how this method is used, it is assumed that in a particular manufacturing firm, the planned normal profit has been determined and at normal operating capacity the following conditions exist.

(a) Total planned normal Profit (before taxes)		$ 2,000,000
(b) Total normal commercial expense (selling, administrative and research)		1,000,000
(b) Total normal Manufacturing cost:		
Raw material cost	$ 750,000	
Direct labor cost	3,000,000	
Normal burden cost	3,250,000	7,000,000
(d) Total sales		$10,000,000

From the above figures, it is a simple matter to compute the percentage of profit to total cost:

$2,000,000 / ($7,000,000 + $1,000,000) = 25%

Also, the computation for normal commercial expense is

$1,000,000/$7,000,000 = 14.3% of manufacturing cost

The selling price of a product computed in accordance with the mark-up method would then be determined as shown in the following example:

(a) Raw material cost	$ 1.40
(b) Direct labor cost	6.10
(c) Normal burden cost	6.50
(d) Total manufacturing cost	$ 14.00
(e) Commercial expense (selling, administrative and research cost) – applied as a percentage of manufacturing cost (14.3% of *d*)	2.00
(f) Total selling cost (manufacture and sell)	16.00
(g) Profit – applied as a percentage of total selling cost (25% of *f*)	4.00
(h) Selling price	$20.00

Source: Taylor and Wills, p. 373.

APPENDIX B. LIST OF INTERVIEWS WITH ACQUISTION PROFESSIONALS

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3. Arthur, James, VP Contracts, Litton Data Systems Division, Agoura Hills, CA., 5 November 1998.

4. Blumfield, David, CDR, SC, USN, Director, Contracts Department, Navy Inventory Control Point, Philadelphia, PA., 30 July 1998

5. Brown, Brian, Industrial Engineer, Price Fighters, Fitting Out Supply Support Assistant Center, Norfolk, VA, 7 October 1998.

6. Clements, Joe, CPCM, Adjunct Professor, University of St. Thomas, Minneapolis, MN, 28 October 1998.

7. Gordon, Harvey, Assistant Vice President of Contracts, Lockheed Martin, 19 October 1998.

8. Harshbarger, Eugene, Director, Acquisition Policy Government Programs, Avondale Shipyards Division, Arlington, VA., 8 October 1998

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10. Hyde, Dena, Department Head, Cruise Missile Unmanned Aerial Vehicle Aviation Support Maintenance and Commercial Derivatives Contracts, Naval Air Systems Command, Patuxent River, MD, 5 November 1998.

11. Jenkins, Gwilym, RADM (Sel), SC, USN, Defense Logistics Agency, Fort Belvoir, VA., 22 June 1998.

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14. Sherman, Stanley, Professor, George Washington University, Washington, D.C., 5 November 1998

15. Sullivan, Patrick, Assistant VP Procurement and Finance, Aerospace Industries Association of America, Inc., Washington, D.C., 17 August 1998

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